المراجعة رقم (1)

الترم الثانى

Prep 3 **final revision**

FIRST:ALGEBRA

Choose the correct answer:

1)	If: $n_1(x) = \frac{x+2}{x-1}$, $n_2(x) = \frac{x-5}{x+3}$, then the common domain of the two function n_1 and n_2 is ..... ($\mathbb{R}-\{1,-2\}$ or $\mathbb{R}-\{-3,5\}$ or $\mathbb{R}$ or $\mathbb{R}-\{1,-3\}$)
2)	The set of zeroes of the function f where $f(x) = 2x^2$ is ..... ($\{0\}$ or $\mathbb{R}-\{0\}$ or $\mathbb{R}-\{2\}$ or $\mathbb{R}$)
3)	If (2, 1) is a solution of the equation: $2x + ay = 6$, then a = ... (2 or 6 or 1 or 3)
4)	If A and B are two mutually exclusive events, then P (A ∩ B) = ... (1 or 0 or ∅ or $\frac{1}{2}$)
5)	The point of intersection of the two straight lines which equations are $X + y = 3$ *and* $X - y = 1$ is..... ((1 , 2) or (4 , —1) or (2 , 1) or (5 , −2))
6)	If A and B are two events from the sample space of a random experiment P(B) = 0.7 and P(A) = 0.2 and $A \subset B$, then P$(A \cup B)$ =..... (zero or 0.2 or 0.7 or 0.5)
7)	If the sum of two positive numbers is 9 and their product is 8, then the two numbers are ..... (2 , 7 or 3 , 6 or 4 , 5 or 1 , 8)
8)	The S.S. of the two equations: $x + y = 0, x - 2 = 0$ *in* $\mathbb{R} \times \mathbb{R}$ *is* $\{(0,2)\}$ or $\{(2,2)\}$ or $\{(-2,2)\}$ or $\{(2,-2)\}$

9)	If a regular dice is rolled once then the probability of getting an even number equal ..... (3 or 1 or $\frac{1}{2}$ or $\frac{1}{3}$)
10)	The simplest form of the function f where: $f(x) = \frac{2x^2 + x}{x}$ and $x \neq 0$ ..... ($3x$ or $2x^2 + 1$ or $x^2 + 1$ or $2x + 1$)
11)	If: p (A) = $\frac{1}{3}$, than p ($\grave{A}$) = ... ($\frac{1}{3}$ or $\frac{2}{3}$ or 1 or $\frac{1}{2}$)
12)	If the domain of the function: n $(x) = \frac{1}{x} + \frac{9}{x+b}$ is $\mathbb{R} - \{0, 4\}$, than b = ... (0 or 4 or -4 or 3)
13)	If A and B are mutually exclusive events and if P (A) = $\frac{1}{3}$, P$(A \cup B) = \frac{7}{12}$, then P (B) = ... ($\frac{1}{3}$ or $\frac{1}{4}$ or $\frac{1}{2}$ or $\frac{2}{3}$)
14)	The set of zeroes of f where: $f(x) = -3x$ is ..... ($\{0\}$ or $\{-3\}$ or $\{-3, 0\}$ or $\mathbb{R}$)
15)	If A and B are two events from S where B $\subset$ A, then P (A $\cap$ B) = ... (zero or P (B) or P (A) or P (A$-$B)
16)	The solution set of the two equations: $x + 3y = 4, 3y + x = 1$ is ..... $\{(3, 1)\}$ or $\{(1, 3)\}$ or $\emptyset$ or $\{(1, 0)\}$
17)	If: P (A) = P ($\grave{A}$), than P (A) = ... (zero or 1 or $\frac{1}{2}$ or $\frac{1}{3}$)

18)	The domain of the function n : n $(x) = \frac{x}{x^2+9}$ is ..... ($\mathbb{R}$ or $\mathbb{R}-\{3\}$ or $\mathbb{R}-\{-3\}$ or $\mathbb{R}-\{3,-3\}$)
19)	If: n $(x) = \frac{3}{x+l}$ and the domain of the function is $\mathbb{R}-\{-2\}$, than l = ... (-2 or 3 or 2 or -3)
20)	If A is an event of the sample space of a random experiment and P (A) = P ($\grave{A}$), then P (A) = ... (1 or zero or $\frac{1}{2}$ or $\emptyset$)
21)	The number of the solutions of the two equations: $X-2y=2$ and $3X-6y=6$ is ..... (1 or 2 or 3 or an infinite)
22)	If: x = 3 is a root of the equation: $x^2+mx=3$, then m = ... (-1 or -2 or 2 or 1)
23)	If A and b are two events, A $\subset$ B , P (A $\cap$ B) = ... (zero or P (A) or P (B) or P (A $\cup$ B))
24)	If : n $(x) = \frac{x-3}{x+3}$, then the domain of n $^{-1}(x)$ = ... ($\mathbb{R}$ or $\mathbb{R}-\{-3\}$ or $\mathbb{R}-\{3\}$ or $\mathbb{R}-\{3,-3\}$)
25)	The set of zeroes of the function f : $f(x) = \frac{x^2-4}{x^2-5x+6}$ is ..... ($\{-2\}$ or $\{2,3\}$ or $\{2,-2\}$ or $\{2,-2,3\}$)
26)	The ordered pair which satisfy the two equations: $xy=2$, $x-y=1$ is ..... ((1 , 2) or (2 , 1) or (1 , 1) or (3 , 1))

27)	The simplest form of the function $f : f(x) = \frac{5-x}{x-5}$, $x \neq 5$ is ..... (5 or 0 or -1 or 1)
28)	If A and B are two events, P (A) = P ($\grave{A}$), then P (A) = ... (0 or $\frac{1}{2}$ or 1 or $\frac{1}{4}$)
29)	The common domain of functions: $f_1(x) = \frac{1}{x-1}$, $f_2(x) = \frac{1}{x^2+4}$ is..... ($\mathbb{R}$ or $\mathbb{R}-\{1\}$ or $\mathbb{R}-\{1,2\}$ or $\mathbb{R}-\{1,2,-2\}$)
30)	If: P (A) = $\frac{2}{3}$, P (B) = $\frac{1}{2}$, P (A $\cap$ B) = $\frac{1}{3}$, then P (A $\cup$ B) = ... ($\frac{5}{6}$ or $\frac{1}{3}$ or $\frac{1}{2}$ or $\frac{1}{4}$)
31)	If: P (A) = P ($\grave{A}$), then P (A) = ... (zero or $\frac{1}{2}$ or $\frac{1}{3}$ or 1)
32)	If the two equations: $x + 4y = 7$, $3x + ky = 21$ have infinite solutions k = ... (4 or 12 or 7 or 21)
33)	The set of zeros of f where $f(x) = x^2 - 6x + 9$ is ..... ($\mathbb{R}$ or $\{2,3\}$ or $\{zero\}$ or $\{3\}$)
34)	The point of intersection of the two straight lines: $3x + 5y = 0$, $5x - 3y = 0$ is ..... ((0 , 0) or (−3 , 5) or (3 , 5) or (−5 , 3))
35)	If : A , B are two events in sample space of random experiment and P (A) = $\frac{1}{2}$, P (B) = $\frac{1}{3}$, P (A $\cup$ B) = $\frac{5}{6}$, then ..... B $\subset$ A or B complement A A , B mutually exclusive or A $\subset$ B.

36)	The two numbers whose sum 7 and their product 12 are ..... (2 , 5 or 3 , 4 or 2 , 6 or 1 , 6)
37)	If A and B are two events of the sample space of a random experiment and if P (A) = 0.7, P (A − B) = 0.5, then P (A ∩ B) = ... (0.2 or 0.5 or 0.7 or 0.3)
38)	If A and B are two mutually exclusive events from a sample space, then P (A ∩ B) = ... ($\frac{1}{2}$ or 1 or zero or 3)
39)	If the algebraic fraction n : n $(x) = \frac{x}{x-2}$ has a multiplicative inverse, then the domain of n (x) is ..... ($\mathbb{R}$ or $\mathbb{R}-\{0\}$ or $\mathbb{R}-\{2\}$ or $\mathbb{R}-\{0,2\}$)
40)	The S.S. of the two equations: $x - y = 0$ and $x\,y = 4$ in $\mathbb{R} \times \mathbb{R}$ is .... $\{(0,0)\}$ or $\{(2,2)\}$ $\{(-2,-2)\}$ or $\{(2,2),(-2,-2)\}$
41)	The set of zeros of the function f where: $f(x) = \frac{(x-5)(x-4)}{x^2+16}$ is..... ($\{5,4\}$ or $\{5\}$ or $\{4,-4\}$ or $\mathbb{R}-\{4,-4\}$)
42)	If : $x \neq 5$, then $\frac{x-5}{5-x} =$ ..... (1 or -1 or zero or 5)
43)	The common domain of the two fractions: $n_1(x) = \frac{x}{3}$ and $n_2(x) = \frac{3}{x}$ is ..... ($\mathbb{R}-\{0,3\}$ or $\mathbb{R}-\{3\}$ or $\mathbb{R}-\{0\}$ or $\mathbb{R}$)
44)	The S.S. in $\mathbb{R} \times \mathbb{R}$ of the two equations: x + 3 y = 4 and x + 3 y = 1 is ..... $\{(1,3)\}$ or $\{(0,0)\}$ or $\emptyset$ or $\{(4,1)\}$

45)	$n(x) = \frac{x-1}{x}$ has multiplicative inverse in the domain ..... $(\mathbb{R}-\{0\}$ or $\mathbb{R}-\{1\}$ or $\mathbb{R}-\{0,1\}$ or $\{0,1\})$
46)	One of the solutions for the equation: $2x - y = 1$ is ..... $(2,1)$ or $(1,2)$ or $(2,3)$ or $(0,0)$
47)	If the regular coin is tossed once, then the probability of getting head and tail together equal ..... (0% or 25% or 50% or 100%)
48)	If A $\subset$ B, then P (A $\cap$ B) = ... (0 or P (A) or P (B) or P ($\cap$ B)
49)	The simplest form of the function n: $n(x) = \frac{x^3 - x}{x}$, $x \neq 0$ is n (x) = ... $(x^2$ or $x^2 - 1$ or $x^2 - x$ or $x^3 - 1)$
50)	The domain of the function f : $f(x) = \frac{x-2}{x^2-4}$ is ..... $\{-2,2\}$ or $\mathbb{R}-\{2\}$ or $\mathbb{R}-\{-2\}$ or $\mathbb{R}-\{-2,2\}$
51)	If $Z(f) = \{2\}$ and $f(x) = x^3 + m$, then m = ... $(-8$ or 8 or 2 or $-2)$
52)	One of the solutions for the two equation: $x - y = 3$, $xy = 4$ is ..... $(1,4)$ or $(2,-1)$ or $(4,1)$ or $(1,-2)$
53)	The S.S. in $\mathbb{R} \times \mathbb{R}$ of the two equations: $y - 3 = 0$ and $x + y = 0$ is ..... $\{3,3\}$ or $\{(-3,3)\}$ or $\{(3,0)\}$ or $\{(0,3)\}$

54)	If A and B are two events in the sample space of a random experiment and P (A) = 0.7 , P (A∩B) = 0.2, then P(A−B) = ... (0.5 or 0.9 or 0.7 or 0.2)
55)	If : n $(x) = \frac{x-5}{x-2}$, then the domain of n^{-1} = ... $\{2,5\}$ or $\mathbb{R}-\{2\}$ or $\mathbb{R}-\{5\}$ or $\mathbb{R}-\{2,5\}$
56)	The solution set of the two equations : $x - y = 0$, $xy = 9$ is ..... $\{(-3,3)\}$ or $\{(3,3),(-3,-3)\}$ $\{(0,0)\}$ or $\{(3,-3)\}$
57)	The set of zeros of the function f in $\mathbb{R}$ where : $f(x) = \frac{x+7}{4}$ is ..... $\{-7\}$ or $\{-4\}$ or $\mathbb{R}$ or $\emptyset$)
58)	If the probability that one student succeeds in mathematics exam = 0.6 then the probability that he fails in it equal = ... (1 or 0 or 0.4 or 0.6)
59)	The S.S. in of the two equations: $x + y = 0$, $y = 4$ in $\mathbb{R} \times \mathbb{R}$ is..... $\{(4,4)\}$ or $\{(0,4)\}$ or $\{(-4,4)\}$ or $\{(4,-4)\}$
60)	The two straight lines: $x + 3 = 0$, $y = 4$ are intersected in ..... quadrant. (third or fourth or first or second)

1)	(a) Find : n(x) in its simplest form showing the domain of n where: n $(x) = \frac{3x-4}{x^2-5x+6} + \frac{2x+6}{x^2+x-6}$ (b) Find algebraically the S.S. in $\mathbb{R} \times \mathbb{R}$ of the two equations: $x - 3y = 6$ and $2x + y = 5$

2)	**(a)** Find the solution set in $\mathbb{R}$ of the equation : $x^2 - 5x + 3 = 0$ approximating the roots to the nearest tenth. **(b)** The perimeter of a rectangle is 14 cm. and its area 12 cm.^{2} Find each of its two dimensions.
3)	**(a)** If: n $(x) = \frac{x^2 + x + 1}{x^2 - 9} \div \frac{x^3 - 1}{x^2 - 4x + 3}$, then find n (x) in its simplest form showing the domain of n. **(b)** Find in $\mathbb{R} \times \mathbb{R}$ the solution set of the two equations: $x + y = 3$ and $xy + y^2 = 6$
4)	**(a)** If A and B are two events from the sample space of a random experiment , P (A) = 0.7 , P (B) = 0.4 and P (A ∩ B) = 0.2 , then find (1) P (À) (2) P (A ∪ B) **(b)** Graph the quadratic function f where $f(x) = x^2 - 4x + 3$, $x \in [-1, 5]$, then from the graph deduce : 1) The coordinates of the vertex of the curve. 2) The minimum value of the function. 3) The S.S. in $\mathbb{R}$ of the equation : $x^2 - 4x + 3 = 0$
5)	**(a)** Find algebraically the S.S. of the two equations: $2x - y + 3 = 0$ and $x + 2y + 4 = 0$ in $\mathbb{R} \times \mathbb{R}$ **(b)** The difference between two numbers is 5 and the product of them is 36 find the two numbers.

6)	(a) If A and B are two events in the sample space of a random experiment and P (A) = 0.6 , P (B) = 0.3 , P (A ∩ B) = 0.2 , then find: 1) P (A ∪ B) 2) P (A – B) (b) Simplify to its simplest form showing the domain of n where : $n(x) = \frac{3x}{x^2 - 2x} - \frac{12}{x^2 - 4}$
7)	(a) Find the S.S. of the two equations : $3x + 4y = 24$ and $x - 2y = -2$ in $\mathbb{R} \times \mathbb{R}$ (b) Find by using the general formula the solution set of the equation : $3x^2 - 6x + 1 = 0$
8)	(a) Find : n (x) in the simplest form showing the domain where : $n(x) = \frac{x^2 - 3x + 2}{x^2 - 49} \div \frac{x - 2}{x + 7}$ (b) Graph the function f : $f(x) = x^2 - 1$ taking $x \in [-2, 2]$ and from the graph deduce : 1) The coordinates of the vertex of the curve. 2)The minimum or maximum value of the function. 3)The two roots of the equation $f(x) = 0$
9)	(a) Find the S.S. of the equation : $x^2 - 2x - 4 = 0$ in $\mathbb{R}$ approximating the result to the nearest tenth. (b) Find n(x) in the simplest from showing the domain of n where: $n(x) = \frac{x^2 + x + 1}{x} \times \frac{x^2 - x}{x^3 - 1}$

10)	(a)Find graphically, then verify algebraically the S.S. in $\mathbb{R} \times \mathbb{R}$ to the equations: $y = x + 4$ *and* $x + y = 4$ (b) Put in the simplest form with determining the domain of the function n: n $(x) = \frac{x^2 - 4}{x^2 + 3x + 2} - \frac{x^2 - 2x}{x^2 - x - 2}$ then, find n (1)
11)	(a) 12 cards numbered from 1 to 12, if a card is picked randomly, what's the probability of getting an odd number divisible by 3 (b) Find algebraically the solution set of the two equations: $y - x = 2$, $x^2 + xy - 4 = 0$
12)	(a) Represent graphically the function $f : f(x) = 4 - x^2$ on the interval $[-3, 3]$ and from the drawing deduce the : 1) Roots of the equation : $f(x) = 0$ 2) Equation of symmetric axis. (b) A rectangle with a length more than its width by 4 cm. If the perimeter of the rectangle is 28 cm. , find area of the rectangle.
13)	(a) Find in $\mathbb{R} \times \mathbb{R}$ the S.S. of the two equations : $y - x = 3$ and $x^2 - 2x + 3y = 15$ (b) If : n $(x) = \frac{x^2 - 2x + 1}{x^3 - 1} \div \frac{x - 1}{x^2 + x + 1}$, then find n (x) in the simplest form showing the domain of n
14)	(a) Find the solution set of the equation by using the general rule rounding the result to the nearest two decimal digits : $3x^2 - 5x + 1 = 0$ (b) A rectangle whose length is greater than its width by 3 cm., if twice its length is smaller than four times its width by 2 cm., find length and width of the rectangle.

15)	**(a)** Find the solution set of the two equations: $2x - y = 3, x + 3y = 5$ algebraically **(b)** Find $n(x)$ in the simplest form showing its domain where : $n(x) = \frac{2x+6}{x^2 + x - 6} + \frac{3x-4}{x^2 - 5x + 6}$
16)	**(a)** Represent graphically the function : $f(x) = x^2 + 3$, where $x \in [-3, 3]$ and from the drawing deduce : 1) The S.S. of the equation $f(x) = 0$ 2) The equation of the symmetry axis. **(b)** If A and B are two events of a sample space of a random experiment and P (A) = $\frac{4}{9}$, P (B) = $\frac{1}{3}$, P (A ∪ B) = $\frac{2}{3}$ Find : P (A ∩ B)
17)	**(a)** Find n (x) in the simplest form showing the domain of n where: $n(x) = \frac{x^2 - 4}{x^2 + 3x + 2} \div \frac{x^2 - 2x}{x^2 - x - 2}$, then find n (- 1) if possible. **(b)** Two acute angles in a right-angled triangle, the difference between their measure 40^o, find the measure of each angle.
18)	**(a)** Find the S.S. of the two equations : $x + y = 7$ *and* $x^2 + y^2 = 25$ in $\mathbb{R} \times \mathbb{R}$ **(b)** Find the solution set of the equation (using formula) to: $x(x + 2) = 1$, rounding the results to two decimal places.
19)	**(a)** Find the solution set for each pair of the following two equations algebraically or graphically : $x - 2y = 0$ *and* $2x - y = 3$ **(b)** Find n (x) in the simplest form showing the domain of n where: $n(x) = \frac{3}{12x^2 - 3} - \frac{2x}{4x^2 - 2x}$ then find n (0) if possible.

20)	(a) A bag contains 20 identical card numbered from 1 to 20 a card is randomly drawn. Find the probability that number on the card is : (1) divisible by 3 (2) an odd and divisible by 5 (b) Draw the graphical form of the function f where : $f(x) = x^2 - 2x - 3$ in the interval $[-2, 4]$ and from the drawing find: 1) The vertex of the curve. 2)The maximum value or the minimum value of the function. 3)The two roots of the equation $f(x) = 0$
21)	(a) Find graphically or algebraically the S.S. of the two equations : $x + y = 4, 2x - y = 2$ in $\mathbb{R} \times \mathbb{R}$ (b) The sum of two integers is 9 and the difference between their squares is 27 find the two numbers.
22)	(a) Find the function n in its simplest form showing its domain where : $n(x) = \frac{x-1}{x^2-1} \div \frac{x^2-5x}{x^2-4x-5}$ (b) Find the S.S. of two equations : $x - y = 1,\ x^2 + y^2 = 13$
23)	(a) Using formula find SS. of : $x^2 - 4x + 1 = 0$, approximated to two decimals. (b) If : $n(x) = \frac{x^2-2x+4}{x^3+8} + \frac{x^2-x-2}{x^2-4}$ Put $n(x)$ in the simplest form showing its domain.
24)	(a) A box contains 20 symmetrical balls , 8 red 7 white and the rest is green one ball was drawn randomlly find probability that it was. 1) Red 2) White or green 3) Not white (b) Draw the graph of function f where $f(x) x^2 - 4x + 3$, $x \in [0, 4]$ From the graph find : 1) The maximum or minimum value 2) The S.S. of $x^2 - 4x + 3 = 0$

25)	(a) If : $n(x) = \frac{x^2 - 1}{x^2 + 3x + 2} \div \frac{x^2 - x}{x^2 + 2x}$, then find $n(x)$ in the simplest from showing the domain of n (b) Find in $\mathbb{R} \times \mathbb{R}$ graphically and algebraically the S.S. of the two equations : $y = x + 1$ *and* $y = 2x - 1$
26)	(a) A rectangle is with a length more that its width by 2 cm. If the perimeter of the rectangle is 32cm. Find the area of the rectangle. (b) If A and B are two events of the sample space of a random experiment , P (A) = 0.5 and P(A ∪ B) = 0.8 and P (B) = x ,then find the value of x if : 1) P (A ∩ B) = 0.1 2) A ⊂ B
27)	(a) Graph the function f where : $f(X) = x^2 - 4x + 3$, on the interval [- 1 , 5] and from the graph find : 1)The minimum value of the function. 2)The equation of the axis of symmetry. 3)The S.S. of the equation $f(X) = 0$ (b) Find The S.S. of the equation : $3x^2 = 5x - 1$ approximating the result to the nearest two decimal digits.
28)	(a) Find in $\mathbb{R} \times \mathbb{R}$ the S.S. of the two equations : $y - x = 2$ and $x^2 + xy - 4 = 0$ (b) Find n (x) in the simplest form showing the domain of n : $n(x) = \frac{3x - 15}{x^2 - 8x + 15} - \frac{x^2 - 3x - 18}{9 - x^2}$

29)	(a) Find n (x) in the simplest form showing the domain of n where: $n(x) = \frac{x}{x^2 + 2x} - \frac{x-2}{4 - x^2}$, then find : n (-2) if possible. (b) A rectangle whose diagonal length 5 cm. and perimeter 14 cm. find its two dimensions.
30)	(a) Find n (x) in the simplest from identifying the domain , where : $n(x) = \frac{x^2 - 49}{x^3 - 8} \div \frac{x+7}{x-2}$ (b) Find the solution set for the two equations: $x - y = 0, x\,y = 9$
31)	(a) Find graphically or algebraically the S.S. in $\mathbb{R} \times \mathbb{R}$ of the two equation : $2x + y = 1 , x + 2y = 5$ (b) Find the solution set of : $x^2 - x = 4$, using the general rule. Given that $\sqrt{17} = 4.12$
32)	(a) Draw the graphical representation of the function f where : $f(x) = x^2 - 2x$ in the interval [- 1 , 3] and from the drawing find the roots of the equation $f(x) = 0$ (b) If A and B are two events in sample space of a random experiment where P (A) = $\frac{3}{8}$, P(B) = $\frac{1}{2}$, P (A ∪ B) = $\frac{5}{8}$ Find : P ($\grave{A}$) and P (A ∩ B)
33)	(a) Find n (x) in the simplest form determining the domain of n where : $n(x) = \frac{x^2 - 2x + 4}{x^3 + 8} + \frac{x^2 - x - 2}{x^2 - 4}$ (b) A rectangle whose length exceeds width by 4 cm. , if the perimeter of the triangle is 28 cm. Find its area.

34)	**(a)** Find in $\mathbb{R} \times \mathbb{R}$ the S.S. of the two equations : $x - 2y = 4$ *and* $3x + y = 5$ **(b)** Find the solution set for the two equations : $x = y + 2$, $x^2 + xy = 0$
35)	**(a)** Find the solution set of the equations : $x^2 + x = 3$ rounding the result to one decimal digit. **(b)** Find n (x) in the simplest form identifying its domain where : $\text{n}(x) = \frac{x^3 - 8}{x^2 + x - 6} \div \frac{x^2 + 2x + 4}{x - 3}$
36)	**(a)** Represent graphically the function f where : $f(x) = (x-2)^2, x \in \mathbb{R}$ where $x \in [-1, 5]$ and from the drawing find the roots of the equation $f(x) = 0$ **(b)** If A and B are two events from a sample space of a random experiment and P (A) = 0.5 , P (A ∪ B) = 0.9 and P (B) = x , then find the value of x if A and B are mutually exclusive events.
37)	**(a)** Find n (x) in the simplest form showing the domain of n : $\text{n}(x) = \frac{x^2 + 2x - 3}{x + 3} \div \frac{x^2 - 1}{x + 1}$ **(b)** Find the S.S. of the two equations : $y - x = 2$, $x^2 + xy - 4 = 0$ in $\mathbb{R} \times \mathbb{R}$
38)	**(a)** A number formed from two digits their sum is 11 and twice the units digit exceeds three times the tens digit by 2 find the number. **(b)** Find the solution set of the equation : $x^2 - 4x + 1 = 0$ in $\mathbb{R}$ rounding the result to two decimal place.

39)	(a) Find n (x) in the simplest form identifying the domain , where : $\text{n}(x) = \frac{x}{x^2+2x} + \frac{x-2}{x^2-4}$ (b) Find the solution set of the two equations : $x + y = 7 , 5x - y = 5$
40)	(a) A bag contains 20 identical cards numbered from 1 to 20 , a card is randomly drawn , find the probability that the number is : 1) divisibly by 5 2) divisibly by both numbers 5 or 7 (b) Represent the quadratic function $f(x) = x^2 - 4$, graphically in the interval $[-2 , 2]$ and from the graph find : 1)The minimum or maximum value of the function. 2)The set of zeros of the function f

The answer

1)	$\mathbb{R}-\{1,-3\}$	2)	$\{0\}$	3)	2
4)	0	5)	$(2,1)$	6)	0.7
7)	$1,8$	8)	$\{(2,-2)\}$	9)	$\frac{1}{2}$
10)	$2x+1$	11)	$\frac{2}{3}$	12)	-4
13)	$\frac{1}{4}$	14)	$\{0\}$	15)	P (B)
16)	$\emptyset$	17)	$\frac{1}{2}$	18)	$\mathbb{R}$
19)	2	20)	$\frac{1}{2}$	21)	an infinite
22)	-2	23)	P (A)	24)	$\mathbb{R}-\{3,-3\}$
25)	$\{-2\}$	26)	$(2,1)$	27)	-1
28)	$\frac{1}{2}$	29)	$\mathbb{R}-\{1\}$	30)	$\frac{5}{6}$
31)	$\frac{1}{2}$	32)	12	33)	$\{3\}$
34)	$(0,0)$	35)	A , B mutually exclusive	36)	$3,4$
37)	0.2	38)	ZERO	39)	$\mathbb{R}-\{2\}$
40)	$\{(2,2),(-2,-2)\}$	41)	$\{5,4\}$	42)	-1
43)	$\mathbb{R}-\{0\}$	44)	$\emptyset$	45)	$\mathbb{R}-\{0,1\}$
46)	$(2,3)$	47)	$0\,\%$	48)	P (A)
49)	x^2-1	50)	$\mathbb{R}-\{-2,2\}$	51)	-8
52)	$(4,1)$	53)	$\{(-3,3)\}$	54)	0.5
55)	$\mathbb{R}-\{2,5\}$	56)	$\{(3,3),(-3,-3)\}$	57)	$\{-7\}$
58)	0.4	59)	$\{(-4,4)\}$	60)	second

1) (a) $n(x) = \frac{3x-4}{(x-3)(x-2)} + \frac{2(x+3)}{(x-2)(x+3)}$

$\therefore$ the domain of $n = \mathbb{R} - \{3, 2, -3\}$

, $n(x) = \frac{3x-4}{(x-3)(x-2)} + \frac{2}{x-2}$

$= \frac{3x-4+2x-6}{(x-3)(x-2)} = \frac{5x-10}{(x-3)(x-2)}$

$= \frac{5(x-2)}{(x-3)(x-2)} = \frac{5}{x-3}$

(b) $x - 3y = 6$ (1)

, $2x + y = 5$ i.e. $6x + 3y = 15$ (2)

, Adding (1) and (2) : $\therefore 7x = 21$

$\therefore x = 3$, substituting in (1)

$\therefore 3 - 3y = 6$ $\therefore -3y = 3$

$\therefore y = -1$

$\therefore$ the S.S. $= \{(3, -1)\}$

---

3)(a) $n(x) = \frac{x^2+x+1}{(x-3)(x+3)} + \frac{(x-1)(x^2+x+1)}{(x-1)(x-3)}$

$\therefore$ The domain of $n = \mathbb{R} - \{3, -3, 1\}$

$n(x) = \frac{x^2+x+1}{(x-3)(x+3)} \times \frac{(x-1)(x-3)}{(x-1)(x^2+x+1)}$

$= \frac{1}{x+3}$

(b) $\because xy + y^2 = 6$ $\therefore y(x+y) =$

, $\therefore x + y = 3$ $\therefore 3y = 6$

$\therefore y = 2$ $\therefore x = 1$

$\therefore$ The S.S. $= \{(1, 2)\}$

2) (a) $\because x^2 - 5x + 3 = 0$

$\therefore a = 1, b = -5$ and $c = 3$

$\therefore x = \frac{5 \pm \sqrt{(-5)^2 - 4x\,1x\,3}}{2 \times 1}$

$\therefore x \simeq 4.3$ or $x \simeq 0.7$

$\therefore$ the S.S. $= \{4.3, 0.7\}$

(b) Let the length be x cm. and the width be y cm.

$\therefore 2(x+y) = 14$ $\therefore x + y = 7$

$\therefore x = 7 - y$ (1)

, $xy = 12$, substituting by (1)

$\therefore (7-y)y = 12$ $\therefore 7y - y^2 = 12$

$\therefore y^2 - 7y + 12 = 0$

$\therefore (y-3)(y-4) = 0$

$\therefore y = 3$, from (1) : $\therefore x = 4$

or $y = 4$, from (1) : $\therefore x = 3$

$\therefore$ The two dimensions are 3 cm. and 4 cm.

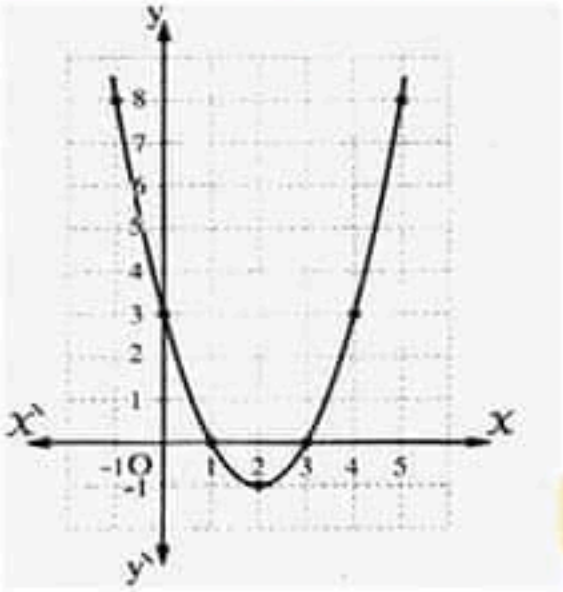
4) (a) (1) $P(\grave{A}) = 1 - P(A) = 1 - 0.7 = 0.3$

(2) $P(A \cup B) = P(A) + P(B) - P(A \cap B)$

$= 0.7 + 0.4 - 0.2 = 0.9$

(b) $f(x) = x^2 - 4x + 3$

X	-1	0	1	2	3	4	5
y	8	3	0	-1	0	3	8



From the graph:

- The vertex point is (2 , - 1)
- The minimum value = - 1

The S.S. of the equation: $x^2 - 4x + 3 = 0$ is $\{1 , 3\}$

5) (a) $2x - y = -3$ (1) , $x + 2y = -4$

i.e. $2x + 4y = -8$ (2)

Subtracting (1) from (2) : $\therefore 5y = -5$

$\therefore y = -1$ Subtracting in (1)

$\therefore x = -2$ $\therefore$ The S.S. $= \{(-2 , -1)\}$

(b) Let the two numbers be x and y where $x > y$

$\therefore x - y = 5$ i.e. $x = 5 + y$ (1)

, $xy = 36$, from (1):

$\therefore (5 + y) y = 36$ $\therefore 5y + y^2 = 36$

$\therefore y^2 + 5y - 36 = 0$ $\therefore (y + 9)(y - 4) = 0$

$\therefore y = -9$ and hence $x = -4$

or $y = 4$ and hence $x = 9$

6) (a) (1) $P(A \cup B) = P(A) + P(B) - P(A \cap B)$

$= 0.6 + 0.3 - 0.2 = 0.7$

(2) $P(A - B) = P(A) - P(A \cap B)$

$= 0.6 - 0.2 = 0.4$

(b) $n(x) = \frac{3x}{x(x-2)} - \frac{12}{(x-2)(x+2)}$

$\therefore$ The domain of $n = \mathbb{R} - \{0 , 2 , -2\}$

, $n(x) = \frac{3}{x-2} - \frac{12}{(x-2)(x+2)}$

$= \frac{3x+6-12}{(x-2)(x+2)} = \frac{3x-6}{(x-2)(x+2)}$

$= \frac{3(x-2)}{(x-2)(x+2)} = \frac{3}{x+2}$

7) (a) $3x + 4y = 24$ (1)

$\therefore x - 2y = -2$ i.e. $2x - 4y = -4$ (2)

, Adding (1) and (2) : $\therefore 5x = 20$ $\therefore x = 4$

, Substituting in (1) : $\therefore y = 3$

$\therefore$ The S.S. $= \{(4, 3)\}$

(b) $\because 3x^2 - 6x + 1 = 0$

$\therefore a=3, b=-6$ and $c = 1$

$$\therefore x = \frac{6 \pm \sqrt{(-6)^2 - 4 \times 3 \times 1}}{2 \times 3} = \frac{6 \pm \sqrt{24}}{6}$$

$\therefore x \simeq 1.82$ or $x \simeq 0.18$

$\therefore$ The S.S. $= \{1.82, 0.18\}$

---

9)(a) $\because x^2 - 2x - 4 = 0$

$\therefore a = 1, b = -2$ and $c = -4$

$$\therefore x = \frac{2 \pm \sqrt{(-2)^2 - 4 \times 1 \times -4}}{2 \times 1} = \frac{2 \pm \sqrt{20}}{2}$$

$\therefore x \simeq 3.2$ or $x \simeq -1.2$

$\therefore$ The S.S. $= \{3.2, -1.2\}$

(b) $n(x) = \frac{x^2+x+1}{x} \times \frac{x(x-1)}{(x-1)(x^2+x+1)}$

$\therefore$ The domain of $n = \mathbb{R} - \{0, 1\}$

, $n(x) = 1$

8)(a) $n(x) = \frac{(x-2)(x-1)}{(x-7)(x+7)} \div \frac{x-2}{x+7}$

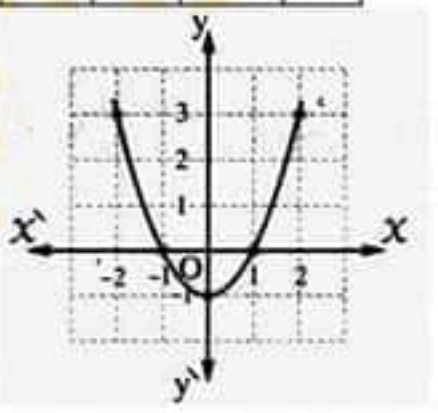
$\therefore$ The domain of $n = \mathbb{R} - \{7, -7, 2\}$

, $n(x) = \frac{(x-2)(x-1)}{(x-7)(x+7)} \times \frac{(x+7)}{(x-2)}$

, $n(x) = \frac{x-1}{x-7}$

(b) $f(x) = x^2 - 1$

x	-2	-1	0	1	2
y	3	0	-1	0	3



(1) The vertex point $= (0, -1)$

(2) The minimum value $= -1$

(3) The two roots of the equation :

$F(x) = 0$ are $-1, 1$

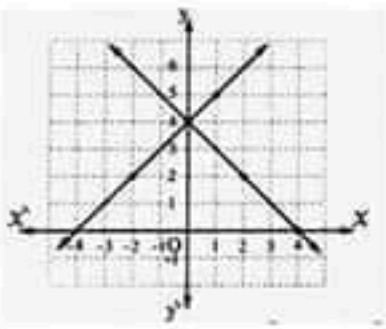
10)(a) Graphically:

$y = x + 4$

X	0	1	-2
y	4	5	2

, $y = 4 - x$

X	0	2	4
y	4	2	0



From the graph : The S.S. $= \{(0, 4)\}$

(b) $n(x) = \frac{(x-2)(x+2)}{(x+2)(x+1)} \times \frac{x(x-2)}{(x-2)(x+1)}$

$\therefore$ The domain of $n = \mathbb{R} - \{-2, -1, 2\}$

, $n(x) = \frac{x-2}{x+1} - \frac{x}{x+1} = \frac{-2}{x+1}$

, $n(1) = \frac{-2}{2} = -1$

---

11) (a) $\frac{1}{6}$

(b) $\because y = x + 2$ (1)

, Substituting in the other equation

$\therefore x^2 + x(x+2) - 4 = 0$

$\therefore x^2 + x^2 + 2x - 4 = 0$

$\therefore 2x^2 + 2x - 4 = 0$ $\therefore x^2 + x - 2 = 0$

$\therefore (x+2)(x-1) = 0$

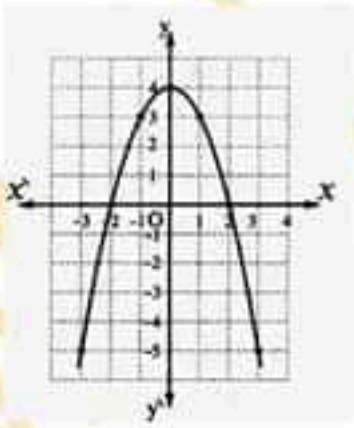
$\therefore x = -2$ and hence $y = 0$

or $x = 1$ and hence $y = 3$

$\therefore$ The S.S. $= \{(-2, 0), (1, 3)\}$

12)(a) $f(x) = 4 - x^2$

X	-3	-2	-1	0	1	2	3
y	-5	0	3	4	3	0	-5



(1) Roots of the equation : $f(x) = 0$ are $-2, 2$

(2) The axis of symmetry is : $x = 0$

(b) $\because L - W = 4$ (1), $\because 2(L + W) = 28$

$\therefore L + W = 14$ (2)

, Adding (1) and (2) : $\therefore 2L = 18$

$\therefore L = 9$, then $W = 5$

$\therefore$ Area of the rectangle $= L \times W = 9 \times 5 =$ 45 cm^2.

13)(a) $y = 3 + x$ (1) , Substituting in the other equation

$\therefore x^2 - 2x + 3(3 + x) = 15$

$\therefore x^2 - 2x + 9 + 3x = 15 \quad \therefore x^2 + x - 6 = 0$

$\therefore (x - 2)(x + 3) = 0$

$\therefore x = 2$ and hence $y = 5$

or $x = -3$ and hence $y = 0$

$\therefore$ The S.S. $= \{(2, 5), (-3, 0)\}$

(b) $n(x) = \frac{(x-1)^2}{(x-1)(x^2+x+1)} \div \frac{x-1}{x^2+x+1}$

$\therefore$ The domain of $n = \mathbb{R} - \{1\}$

, $n(x) = \frac{(x-1)^2}{(x-1)(x^2+x+1)} \div \frac{x^2+x+1}{x-1}$

$\therefore n(x) = 1$

---

15)(a) $2x - y = 3$ (1)

, $x + 3y = 5$ i.e. $2x + 6y = 10$

Substituting (1) from (2) : $\therefore 7y = 7$

$\therefore y = 1$ and hence $x = 2$

$\therefore$ The S.S. $\{(2, 1)\}$

(b) $n(x) = \frac{2(x+3)}{(x-2)(x+3)} + \frac{3x-4}{(x-2)(x-3)}$

$\therefore$ The domain of $n = \mathbb{R} - \{2, -3, 3\}$

, $n(x) = \frac{2}{x-2} + \frac{3x-4}{(x-2)(x-3)}$

$= \frac{2x-6+3x-4}{(x-2)(x-3)} = \frac{5x-10}{(x-2)(x-3)}$

$= \frac{5(x-2)}{(x-2)(x-3)} = \frac{5}{x-3}$

14) (a) $\because 3x^2 - 5x + 1 = 0$

$\therefore a = 3, b = -5$ and $c = 1$

$\therefore x = \frac{5 \pm \sqrt{(-5)^2 - 4 \times 3 \times 1}}{2 \times 3} = \frac{5 \pm \sqrt{13}}{6}$

$\therefore x \simeq 1.43$ or $x \simeq 0.23$

$\therefore$ The S.S. $= \{1.43, 0.23\}$

(b) Let the length be x cm. and the width be y cm.

$\therefore x - y = 3$ (1)

, $4y - 2x = 2 \quad \therefore 2y - x = 1$ (2)

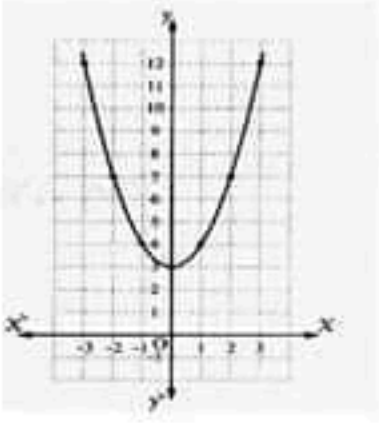
, Adding (1) and (2) : $\therefore y = 4 \quad \therefore x = 7$

$\therefore$ The length = 7 cm. , the width = 4cm.

---

16)(a) $f(x)\ x^2 + 3$

X	-3	-2	-1	0	1	2	3
y	12	7	4	3	4	7	12



(1) The S.S. of the equation: $f(x) = 0$ is $\emptyset$

(2) The equation of the axis of symmetry is : $x = 0$

16) (b) $\because P(A \cup B) = P(A) + P(B) - P(A \cap B)$

$\therefore \frac{2}{3} = \frac{4}{9} + \frac{1}{3} - P(A \cap B)$

$\therefore P(A \cap B) = \frac{1}{9}$

---

17) (a) $n(x) = \frac{(x-2)(x+2)}{(x+2)(x+1)} \div \frac{x(x-2)}{(x-2)(x+1)}$

$\therefore$ The domain of $n = \mathbb{R} - \{-2, -1, 0, 2\}$

, $n(x) = \frac{(x-2)(x+2)}{(x+2)(x+1)} \times \frac{(x-2)(x+1)}{x(x-2)} = \frac{x-2}{x}$

(b) Let the measure of the two angle are x and y where : $x > y$

$\therefore x + y = 90^\circ$ (1) $x - y = 40^\circ$ (2)

, Adding (1) and (2) : $\therefore 2x = 130^\circ$

$\therefore x = 65^\circ, y = 25^\circ$

$\therefore$ The measure of the two angle are 65° and 25°

---

18)(a) $x = 7 - y$ (1) , Substituting in the other equation

$\therefore (7-y)^2 + y^2 = 25$ $\therefore 49 - 14y + y^2 + y^2 = 25$

$\therefore 2y^2 - 14y + 24 = 0$

$\therefore y^2 - 7y + 12 = 0$ $\therefore (y-3)(y-4) = 0$

$\therefore y = 3$ and hence $x = 4$ or $y = 4$ and hence $x = 3$

$\therefore$ The S.S. $= \{(4,3), (3,4)\}$

(b) $\because x(x+2) = 1$ $\therefore x^2 + 2x - 1 = 0$

$\therefore a = 1, b = 2$ and $c = -1$

$\therefore x = \frac{-2 \pm \sqrt{(2)^2 - 4(1)(-1)}}{2 \times 1} = \frac{-2 \pm \sqrt{8}}{2}$

$\therefore x \simeq 0.41$ or $x \simeq -2.41$

$\therefore$ The S.S. $= \{0.41, -2.41\}$

---

19) (a) $x - 2y = 0$ (1) , $2x - y = 3$

i.e. $-4x + 2y = -6$

, Adding (1) and (2) : $\therefore -3x = -6$

$\therefore x = 2$, Substituting in (1) : $\therefore y = 1$

$\therefore$ The S.S. $= \{(2, 1)\}$

(b) $n(x) = \frac{3}{3(2x-1)(2x+1)} - \frac{2x}{2x(2x-1)}$

$\therefore$ The domain of $n = \mathbb{R} - \left\{\frac{1}{2}, -\frac{1}{2}, 0\right\}$

, $n(x) = \frac{1}{(2x-1)(2x+1)} - \frac{1}{2x-1}$

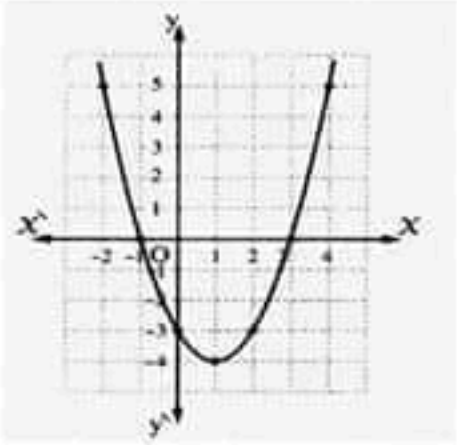
$= \frac{1-2x-1}{(2x-1)(2x+1)} = \frac{-2x}{(2x-1)(2x+1)}$

, $n(0)$ is undefined.

20)(a) (1) $\frac{3}{10}$ (2) $\frac{1}{10}$

(b) $f(x) = x^2 - 2x - 3$

X	-2	-1	0	1	2	3	4
y	5	0	-3	-4	-3	0	5



(1) The vertex of the curve is (1 , - 4)

(2) The minimum value of the function is - 4

(3) The two roots of the equation : f (x) =0 are - 1 , 3

21)(a) $x + y = 4$ (1) , $2x - y = 2$ (2)

, Adding (1) and (2):

$\therefore 3x = 6$

$\therefore x = 2$, Substituting in (1)

$\therefore y = 2$ $\therefore$ The S.S. $= \{(2 , 2)\}$

(b) Let the two integers x and y

$\therefore x + y = 9$ i.e. $x = 9 - y$ (1)

, $x^2 - y^2 = 27$ (2)

Substituting from (1) in (2) :

$\therefore (9 - y)^2 - y^2 = 27$

$\therefore 81 - 18y + y^2 - y^2 = 27$ $\therefore 18y = 54$

$\therefore y = 3$ and hence $x = 6$

$\therefore$ The two integers are : 6 and 3

22)(a) $n(x) = \frac{x-1}{(x-1)(x+1)} \div \frac{x(x-5)}{(x-5)(x+1)}$

$\therefore$ The domain of $n = \mathbb{R} - \{1 , -1 , 0 , 5\}$

, $n(x) = \frac{1}{x+1)} \times \frac{x+1}{x} = \frac{1}{x}$

(b) $x = 1 + y$ (1) , Substituting in the other equation

$\therefore (1 + y)^2 + y^2 = 13$

$\therefore 1 + 2y + y^2 + y^2 = 13$ $\therefore 2y^2 + 2y - 12 = 0$

$\therefore y2 + y - 6 = 0$ $\therefore (y + 3)(y - 2) = 0$

$\therefore y = -3$ and hence $x = -2$

or $y = 2$ and hence $x = 3$

$\therefore$ The S.S. $= \{(-2 , -3), (3 , 2)\}$

23)(a) $\because x^2 - 4x + 1 = 0$

$\therefore a = 1, b = -4$ and $c = 1$

$\therefore x = \frac{4 \pm \sqrt{(-4)^2 - 4 \times 1 \times 1}}{2 \times 1} = \frac{4 \pm \sqrt{12}}{2}$

$\therefore x \simeq 3.73$ or $x \simeq 0.27$

$\therefore$ The S.S. $= \{3.73, 0.27\}$

(b) $n(x) = \frac{x^2-2x+4}{x^3+8} + \frac{x^2-x-2}{x^2-4}$

$= \frac{x^2-2x+4}{(x+2)(x^2-2x+4)} + \frac{(x-2)(x+1)}{(x-2)(x+2)}$

$\therefore$ The domain of $n = \mathbb{R} - \{-2, 2\}$

$, n(x) = \frac{1}{x+2} + \frac{x+1}{x+2} = \frac{x+2}{x+2} = 1$

---

25) (a) $(x) = \frac{(x-1)(x+1)}{(x+2)(x+1)} \div \frac{x(x-1)}{x(x+2)}$

$\therefore$ The domain of $n = \mathbb{R} - \{-2, -1, 0, 1\}$

$, n(x) = \frac{x-1}{x+2} \times \frac{x+2}{x-1} = 1$

(b) Graphically :

From the graph : The S.S. $= \{(2, 3)\}$

Algebraically :

$Y = x + 1$ (1) . Substituting in the other equation

$\therefore x + 1 = 2x - 1$

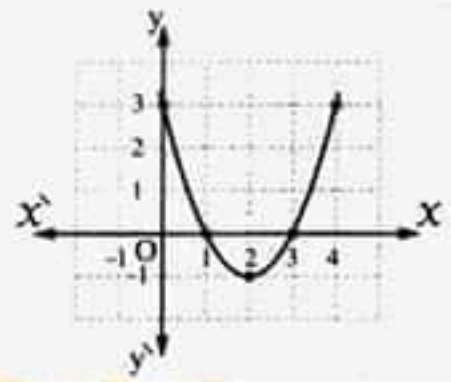
$\therefore x = 2$, Substituting in (1): $\therefore y = 3$

$\therefore$ The S.S. $= \{(2, 3)\}$

24)(a) (1) $\frac{2}{5}$ (2) $\frac{3}{5}$ (3) $\frac{13}{20}$

(b) $f(x) = x^2 - 4x + 3$

x	0	1	2	3	4
y	3	0	−1	0	3



From the graph:

(1) The minimum value = - 1

(2) The S.S. of the equation:

$X^2 - 4x + 3 = 0$ is $\{1, 3\}$

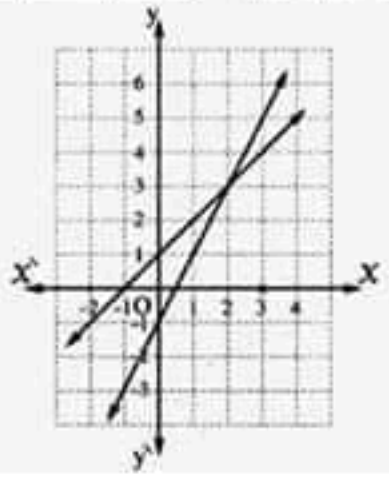
$y = x + 1$

x	−1	0	1
y	0	1	2

,

$y = 2x - 1$

x	0	2	3
y	−1	3	5



26)(a) $\because L - W = 2$ (1) , $2(L + W) = 3$

i.e. $L + W = 16$ (2)

, Adding (1) and (2) : $\therefore 2L = 18$

$\therefore L = 9 , W = 7$

$\therefore$ Area of the rectangle $= 9 \times 7 = 63 cm^2$.

(b)(1) $\because P(A \cup B) = P(A) + P(B) - P(A \cap B)$

$\therefore 0.8 = 0.5 + X - 0.1 \quad \therefore X = 0.4$

(2) $\because A \subset B$, then $P(A \cup B) = P(B) = X$

$\therefore X = 0.8$

---

28)(a) $\because y = x + 2$, Substituting in the other equation

$\therefore x^2 + x(x+2) - 4 = 0$

$\therefore x^2 + x^2 + 2x - 4 = 0$

$\therefore 2x^2 + 2x - 4 = 0$

$\therefore x^2 + x - 2 = 0 \quad \therefore (x-1)(x+2) = 0$

$\therefore x = 1$ and hence $y = 3$

or $x = -2$ and hence $y = 0$

$\therefore$ The S.S. $= \{(1,3),(-2,0)\}$

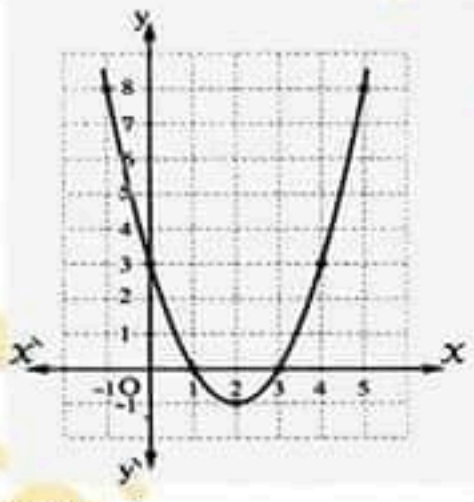
(b) $n(x) = \frac{3(x-5)}{(x-3)(x-5)} + \frac{(x-6)(x+3)}{(x-3)(x+3)}$

$\therefore$ The domain of $n = \mathbb{R} - \{3, 5, -3\}$

, $n(x) = \frac{3}{x-3} \times \frac{x-6}{x-3} = \frac{x-3}{x-3} = 1$

27) (a) $f(x) = x^2 - 4x + 3$

X	-1	0	1	2	3	4	5
y	8	3	0	-1	0	3	8



From the graph:

(1) The minimum value of the function $= -1$

(2) The equation of the axis of symmetry is: $x = 2$

(3) The S.S. of the equation : $f(x) = 0$ is $\{1, 3\}$

(b) $\because 3x^2 - 5x + 1 = 0$

$\therefore a = 3 , b = -5$ and $c = 1$

$\therefore x = \frac{5 \pm \sqrt{(-5)^2 - 4 \times 3 \times 1}}{2 \times 3} = \frac{5 \pm \sqrt{13}}{6}$

$\therefore x \simeq 1.43$ or $x \simeq 0.23$

$\therefore$ The S.S. $= \{1.43, 0.23\}$

29)(a) $n(x) = \frac{x}{x(x+2)} + \frac{x-2}{(x-2)(x+2)}$

$\therefore$ The domain of $n = \mathbb{R} - \{0, -2, 2\}$

, $n(x) = \frac{1}{x+2} \times \frac{1}{x+2} = \frac{2}{x+2}$

, n (-2) is undefined

(b) $2(L + W) = 14 \quad \therefore L + W = 7$

$\therefore L = 7 - W$

, $\because L^2 + W^2 = 25$, Substituting from (1)

$\therefore (7 - w)^2 + w^2 = 25$

$\therefore 49 - 14w + w^2 + w^2 = 25$

$\therefore 2w^2 - 14w + 24 = 0$

$\therefore w^2 - 7w + 12 = 0 \quad \therefore (W-3)(W-4) = 0$

$\therefore W = 3$ and hence $L = 4$

or $W = 4$ and hence $L = 3$ (refused)

$\therefore$ The length = 4 cm. and the width = 3cm.

31) (a) $\because 2x + y = 1 \quad (1), x + 2y = 5$

i.e. $-2x - 4y = -10 \quad (2)$

, Adding (1) and (2) : $\therefore -3y = -9$

$\therefore y = 3$,from (1) : $\therefore x = -1$

$\therefore$ The S.S. $= \{(-1, 3)\}$

(b) $\because x^2 - x - 4 = 0$

$\therefore a = 1, b = -1$ and $c = -4$

$\therefore x = \frac{1 \pm \sqrt{(-1)^2 - 4 \times 1 \times -4}}{2 \times 1} = \frac{1 \pm \sqrt{17}}{2}$

$\therefore x \simeq \frac{1+4.12}{2}$ or $\simeq \frac{1-4.12}{2}$

i.e. $x \simeq 2.56$ or $x \simeq 1.56$

30)(a) $n(x) = \frac{(x-7)(x+7)}{(x-2)(x^2+2x+4)} \div \frac{x+7}{x-2}$

$\therefore$ The domain of $n = \mathbb{R} - \{2, -7\}$

, $n(x) = \frac{(x-7)(x+7)}{(x-2)(x^2+2x+4)} \times \frac{x-2}{x+7}$

$= \frac{x-7}{x^2+2x+4}$

(b) $\because x - y = 0$

i.e. $x = y$, Substituting in the other equation

$\therefore x^2 = 9$

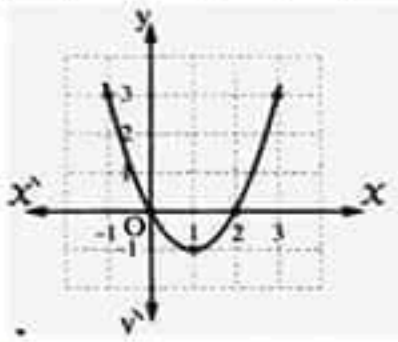
$\therefore x = 3$ and hence $y = 3$

or $x = -3$ and hence $y = -3$

$\therefore$ The S.S. $= \{(3, 3), (-3, -3)\}$

32) (a) $f(x) = x^2 - 2x$

x	-1	0	1	2	3
y	3	0	-1	0	3



From the graph:

The S.S. of the equation : $f(x) = 0$ is $\{0, 2\}$

(b) $P(\dot{A}) = 1 - P(A) = 1 - \frac{3}{8} = \frac{5}{8}$

, $P(A \cup B) = P(A) + P(B) - P(A \cap B)$

$\therefore \frac{5}{8} = \frac{3}{8} + \frac{1}{2} - P(A \cap B)$

$\therefore P(A \cap B) = \frac{1}{4}$

33) (a) $n(x) = \frac{x^2-2x+4}{(x+2)(x^2-2x+4)} + \frac{(x-2)(x+1)}{(x-2)(x+2)}$

$\therefore$ The domain of $n = \mathbb{R} - \{-2, 2\}$

, $n(x) = \frac{1}{x+2} + \frac{x+1}{x+2} = \frac{x+2}{x+2} = 1$

(b) $L - W = 4$ (1) , $2(L+W) = 28$

, Adding (1) and (2) : $\therefore 2L = 18$

$\therefore L = 9$ and $W = 5$

$\therefore$ Area of the rectangle $= L \times W = 45cm^2$.

35) (a) $\because x2 + x - 3 = 0 \quad \therefore a = 1, b = 1$ and $c = -3$

$\therefore x = \frac{-1 \pm \sqrt{(-1)^2 - 4 \times 1 \times -3}}{2 \times 1} = \frac{-1 \pm \sqrt{13}}{2}$

$\therefore x \simeq 1.3$ or $x \simeq 2.3$

(b) $n(x) = \frac{(x-2)(x^2+2x+4)}{(x+3)(x-2)} \div \frac{x^2+2x+4}{x-3}$

$\therefore$ The domain of $n = \mathbb{R} - \{-3, 2, 3\}$

, $n(x) = \frac{x+2x+4}{x+3} \times \frac{x-3}{x^2+2x+4} = \frac{x-3}{x+3}$

34) (a) $x - 2y = 4$ (1)

, $3x + y = 5$ i.e. $6x + 2y = 10$ (2)

, Adding (1) and (2): $\therefore 7x = 14 \quad \therefore x = 2 \quad \therefore y = -1$

$\therefore$ The S.S. $= \{(2, -1)\}$

(b) $\because x = y + 2$ (1) , Substituting in the other equation

$\therefore (y+2)^2 + (y+2)y = 0$

$\therefore y^2 + 4y + 4 + y^2 + 2y = 0$

$\therefore 2y^2 + 6y + 4 = 0 \quad \therefore y^2 + 3y + 2 = 0$

$\therefore (y+2)(y+1) = 0 \quad \therefore y = -2$ and hence $x = 0$

or $y = -1$ and hence $x = 1$

$\therefore$ The S.S. $= \{(0, -2), (1, -1)\}$

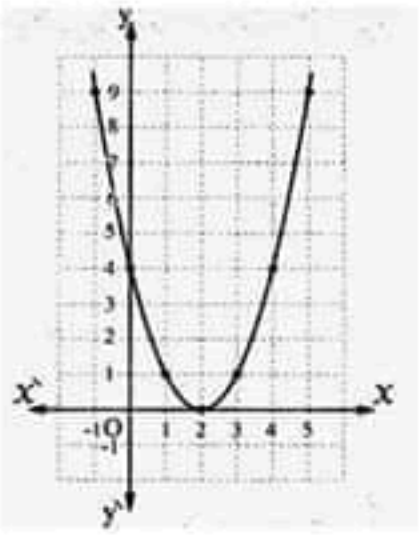
36) (a) $f(x) = (x-2)^2$

X	-1	0	1	2	3	4	5
y	9	4	1	0	1	4	9

(b) $\because$ A and B are two mutually exclusive

$\therefore P(A \cup B) = P(A) + P(B)$

$\therefore 0.9 = 0.5 + x \quad \therefore x = 0.4$



37)(a) $n(x) = \frac{(x-1)(x+3)}{x+3} \div \frac{(x-1)(x+1)}{x+1}$

$\therefore$ The domain of $n = \mathbb{R} - \{-3, 1, -1\}$

, $n(x) = (x-1) \times \frac{1}{(x-1)} = 1$

(b) $y = 2 + x$ (1) , Substituting in the other equation

$x^2 + x(2+x) - 4 = 0$

$\therefore x^2 + 2x + x^2 - 4 = 0$ $\therefore 2x^2 + 2x - 4 = 0$

$\therefore x^2 + x - 2 = 0$ $\therefore (x+2)(x-1) = 0$

$\therefore x = -2$ and hence $y = 0$ or $x = 1$ and hence $y = 3$

$\therefore$ The S.S. $= \{(-2, 0), (1, 3)\}$

---

39)(a) $n(x) = \frac{x}{x(x+2)} + \frac{x-2}{(x+2)(x-2)}$

$\therefore$ The domain of $n = \mathbb{R} - \{0, -2, 2\}$

, $n(x) = \frac{1}{x+2} \times \frac{1}{x+2} = \frac{2}{x+2}$

(b) $x + y = 7$ (1) , $5x - y = 5$ (2)

, Adding (1) and (2) : $\therefore 6x = 12$

$\therefore x = 2$, Substituting in (1) : $\therefore y = 5$

$\therefore$ The S.S. $= \{(2, 5)\}$

38)(a) Let the unite digit is x and the tens digit is y

$\therefore x + y = 11$ (1) , $2x - 3y = 2$ (2)

Multiplying (1) by 2 : $\therefore 2x + 2y = 22$ (3)

, Substituting (2) from (3) : $\therefore 5y = 20$

$\therefore y = 4$ $\therefore x = 7$ $\therefore$ The number is 47

(b) $\because x^2 - 4x + 1 = 0$ $\therefore a = 1, b = -4$ and $c = 1$

$\therefore x = \frac{4 \pm \sqrt{(-4)^2 - 4 \times 1 \times 1}}{2 \times 1} = \frac{4 \pm \sqrt{12}}{2}$

$\therefore x \simeq 3.73$ or $x \simeq 0.27$

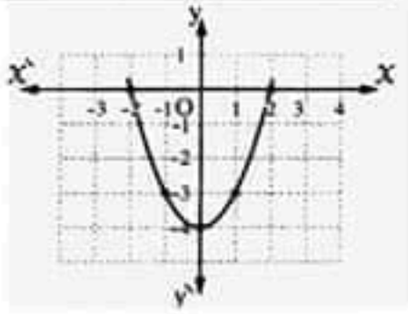
$\therefore$ The S.S. $= \{3.73, 0.27\}$

---

40)(a) (1) $\frac{1}{5}$ (2) $\frac{3}{10}$

(b) $f(x) = x^2 - 4$

X	-2	-1	0	1	2
y	0	-3	-4	-3	0



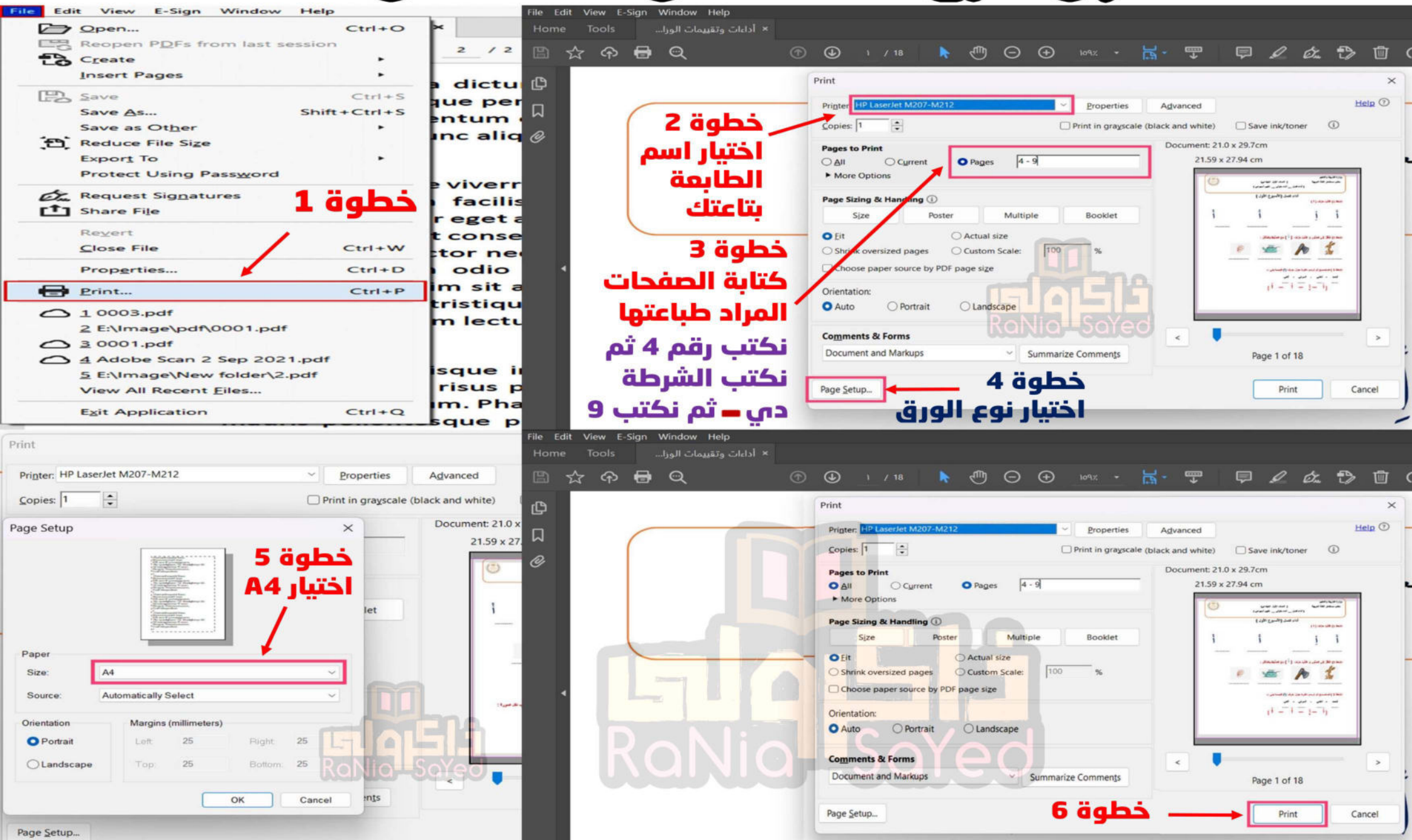
From the graph

- The minimum value of the function is : - 4
- The set of zeroes of the function is :

$\{(-2, 2)\}$

كيفية طباعة صفحات معينة من ملف معين

مثلا ازاى نطبع الصفحات من صفحة 4 الى صفحة 9



المراجعة رقم (2)

الترم الثانى

AHMED NASSR

FINAL REVISION
2025 - SECOND TERM
PREP 3 - ALGEBRA

Q1: CHOOSE THE CORRECT ANSWER

1 The solution set of the two equations: $x + y = 0$ and $y - 5 = 0$ in R x R is ..... .

ⓐ $\{(-5, 5)\}$ ⓑ $\{(5, -5)\}$ ⓒ $\{(5, 5)\}$ ⓓ $\{(-5, -5)\}$

2 The set of zeroes of the function f: $f(x) = -3x$ is ..... .

ⓐ $\{0\}$ ⓑ $\{-3\}$ ⓒ $\{-3, 0\}$ ⓓ R

3 If $n(x) = \frac{x^2 - 2x}{(x-2)(x^2+2)}$, then the domain of n^{-1} is ..... .

ⓐ R ⓑ $R - \{2\}$ ⓒ $R - \{0, 2\}$ ⓓ $R - \{0\}$

4 If there are an infinite number of solutions of the two equations: $x + 4y = 7$, $3x + ky = 21$, then k = ...

ⓐ 4 ⓑ 7 ⓒ 12 ⓓ 21

5 If $\{2\}$ is the set of zeroes of the function f: $f(x) = x^3 - m$, then m = ...

ⓐ 8 ⓑ 6 ⓒ 4 ⓓ 2

6 The algebraic fraction $\frac{1}{x}$ equals the algebraic fraction ..... where $x \neq 0$

ⓐ $\frac{x}{x^2}$ ⓑ $\frac{1}{x^2}$ ⓒ $\frac{x}{2}$ ⓓ $\frac{x+1}{x}$

7 The S.S of the two equations : $x - y = 0$, $xy = 9$ in $R \times R$ is ..... .

ⓐ $\{(0, 0)\}$ ⓑ $\{(-3, 3)\}$ ⓒ $\{(3, 3)\}$ ⓓ $\{(-3, -3), (3, 3)\}$

8 The number of solutions of the two equations: $x + y = 2$, $2y + 2x = 5$ in $R \times R$ is ..... .

ⓐ 0 ⓑ 1 ⓒ 2 ⓓ infinite

9 If A is an event from the sample space of a random experiment, then $P(\grave{A})$ = ...

ⓐ $P(A) - 1$ ⓑ $1 - P(A)$
ⓒ -1 ⓓ 1

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10 The two straight lines: $x - 3 = 0$, $y = 4$ are intersecting in the ..... quadrant.

(a) first (b) second (c) third (d) fourth

11 If the two straight lines : $x - 3y = 2$, $x + ky = 5$ are parallel, then k = ...

(a) 2 (b) 5 (c) -3 (d) 3

12 The additive inverse of the algebraic fraction $\frac{2}{x-1}$ is ..... , where $x \neq 0$

(a) $\frac{-2}{x+1}$ (b) $\frac{x-1}{2}$ (c) $\frac{2}{1-x}$ (d) $\frac{-2}{-x+1}$

13 The number of solutions of the two equations : $x + 2y = 5$, $x - 2y = -1$ in $R \times R$ is ..... .

(a) 0 (b) 1 (c) 2 (d) infinite

14 The probability of the impossible event is ..... .

(a) zero (b) 1 (c) $\frac{1}{2}$ (d) $\emptyset$

15 The set of zeroes of f where $f(x) = \frac{x^2 - 3x + 2}{x - 2}$ is ..... .

(a) {2} (b) {1} (c) $R - \{2\}$ (d) {1 , 2}

16 The solution set of the two equations: $x + 3y = 4$, $3y + x = 1$ in $R \times R$ is ..... .

(a) $\emptyset$ (b) {(1 , 1)} (c) $\{(0 , \frac{1}{3})\}$ (d) {(0 , 0)}

17 One of the solutions of the two equations: $x - y = 2$, $x^2 + y^2 = 20$ in $R \times R$ is ..... .

(a) (1 , 3) (b) (2 , 0) (c) (4 , 2) (d) (−4 , 2)

18 The two straight lines: $3x + 5y = 0$, $5x - 3y = 0$ are intersecting at ..... .

(a) an infinite number of solution (b) the fourth quadrant
(c) the first quadrant (d) the origin point

19 The set of zeroes of the function f: $f(x) = x^2 + 1$ is ..... .

(a) $\varnothing$ (b) $\{-1\}$ (c) $\{-1 , 1\}$ (d) $\{0\}$

20 If $ab = 3$, $ab^2 = 12$, then b = ...

(a) 4 (b) 2 (c) -2 (d) ± 2

21 The ordered pair which satisfies each of the two equations: $xy = 2$, , $x - y = 1$ is ..... .

(a) $(1 , 1)$ (b) $(2 , 1)$ (c) $(1 , 2)$ (d) $(\frac{1}{2} , 1)$

22 The domain of the function f: $f(x) = \frac{x - 7}{3(x - 3)}$ is ..... .

(a) $R - \{-1\}$ (b) $R - \{1\}$ (c) $R - \{-1 , 3\}$ (d) R

23 The set of zeroes of the function f: $f(x) = x^2 + 25$ is ..... .

(a) $\varnothing$ (b) $\{5\}$ (c) $\{5 , -5\}$ (d) R

24 If $P(A) = 4\ P(A')$, then $P(A)$ = ...

(a) 0.6 (b) 0.4 (c) 0.2 (d) 0.8

25 If the probability of the success of a student is 95%, then the probability of the student does not succeed is ..... .

(a) 20 % (b) 5 % (c) 10 % (d) 0

26 If $z(f) = \{2\}$, $f(x) = x^3 - m$, then m = ...

(a) $\sqrt[3]{2}$ (b) 2 (c) 4 (d) 8

27 The two straight lines: $x + y = 5$, $2x + 2y = 7$ are ..... .

(a) parallel (b) coincident
(c) intersecting and not perpendicular (d) perpendicular

28 The set of zeroes of the function f where $f(x) = x(x^2 - 2x + 1)$ is ..... .

(a) {0 , 1} (b) {0 , −1} (c) {0} (d) {1}

29 The point of intersection of the two straight lines : $x + 2 = 0$, $y = x$ is ..... .

(a) (2 , 2) (b) (2 , 0) (c) (−2 , −2) (d) (0 , 0)

30 If $n_1(x) = \frac{x^2 - 4}{x - 3}$, $n_2(x) = x + 3$, then $n_1 = n_2$ when they have the same domain which is .....

(a) R (b) R − {3} (c) R − {− 3} (d) R − {1}

31 If $A \subset B$, then $P(A \cap B)$ = ...

(a) P(A) (b) P(B) (c) zero (d) Ø

32 If $A \subset S$ of a random experiment and $P(\grave{A}) = 2\,P(A)$, then $P(A)$ = ...

(a) $\frac{1}{2}$ (b) $\frac{1}{3}$ (c) $\frac{2}{3}$ (d) 1

33 The set of zeroes of the function f: $f(x)$ = zero is ..... .

(a) $\varnothing$ (b) R − {0} (c) { 0} (d) R

34 In the equation: $ax^2 + bx + c = 0$ where $a \neq 0$, if $b^2 - 4ac > 0$, then this equation has ..... roots in R.

(a) 1 (b) 2 (c) zero (d) an infinite number

35 The S.S of the two equations: $x - 2y = 1$, $3x + y = 10$ in $R \times R$ is .....

(a) {(5 , 2)} (b) {(2 , 4)} (c) {(1 , 3)} (d) {(3 , 1)}

36 The two straight lines : $x + 3y = 4$, $3y + x = 1$ are ..... .

(a) parallel (b) coincident
(c) intersecting and not perpendicular (d) perpendicular

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37 If x = 3 is one of the zeroes of the function f: $f(x) = \frac{x^2 - 2x + k}{x^2 - 25}$, then k = ...

ⓐ 3 ⓑ 6 ⓒ −3 ⓓ −6

38 If A and B are two events of a sample space S, A ⊂ B, then P(A ∪ B) = ...

ⓐ P(A) ⓑ P(B) ⓒ P(A ∩ B) ⓓ 0

39 A regular dice is rolled once , then the probability of getting an odd number and an even number together equals .....

ⓐ zero ⓑ 1 ⓒ $\frac{3}{4}$ ⓓ $\frac{1}{2}$

40 If x = 3 is one of the solutions of the equation: $x^2 - ax - 6 = 0$, then a = ...

ⓐ 1 ⓑ 2 ⓒ 3 ⓓ −1

41 The common domain of the two fraction $\frac{2x}{x-3}$, $\frac{x}{x+5}$ is ..... .

ⓐ {3 , −5} ⓑ R − {0 , 3 , −5} ⓒ R − {3 , −5} ⓓ R

42 The probability of the certain event equals .....

ⓐ zero ⓑ 1 ⓒ $\frac{1}{2}$ ⓓ ∅

43 If A and B are two events from the sample space of a random experiment , P (A) = 0.6 and P (A ∩ B) = 0.4 , then P (A − B) = ...

ⓐ 0.6 ⓑ 0.4 ⓒ 0.2 ⓓ 0.1

44 The number of solutions of the equation : y − 2 = zero in R x R is ..... .

ⓐ 0 ⓑ 1 ⓒ 2 ⓓ infinite

45 The number of solutions of the two equations: x + 2y = 3, 2x + 4y + 6 = 0 in R × R is ..... .

ⓐ a unique solution ⓑ two solutions
ⓒ an infinite number of solutions ⓓ zero

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46 If $x \neq 0$, then $\frac{5x}{x^2+1} \div \frac{x}{x^2+1}$ = ...

ⓐ 1 ⓑ −1 ⓒ −5 ⓓ 5

47 If the S.S of the equation: $x^2 - ax + 4 = 0$ in R is {2}, then a = ...

ⓐ −4 ⓑ 2 ⓒ −2 ⓓ 4

48 If A and B are two mutually exclusive events of a sample space of a random experiment, then P(A − B) = ...

ⓐ P(A) ⓑ P(B) ⓒ $P(\grave{A})$ ⓓ $P(\grave{B})$

49 The point of intersection of the two straight lines: x + 3 = 0 and y = 5 is ..... .

ⓐ (3 , 5) ⓑ (−3 , 5) ⓒ (−3 , −5) ⓓ (3 , −5)

50 If $n(x) = \frac{x}{x^2+9}$, then the domain of n^{-1} is .....

ⓐ Ø ⓑ R − {−3 , 3 , 0} ⓒ R ⓓ R − {0}

51 The common domain of the two fraction $\frac{2}{x^2-1}$, $\frac{5x}{x^2-x}$ is ..... .

ⓐ R − {1} ⓑ R − {0 , 1} ⓒ R − {0 , 1 , −1} ⓓ R − {1 , −1}

52 If the curve of the quadratic function f passes through the points (−1 , 0), (0 , −4) and (4 , 0), then the solution set of the equation $f(x) = 0$ in R is .....

ⓐ {−1 , 0} ⓑ {−4 , 0} ⓒ {−1 , 4} ⓓ {4 , −4}

53 The set of zeroes of the function f: $f(x) = \frac{2-x}{7}$ is ..... .

ⓐ ∅ ⓑ {2} ⓒ {2 , 7} ⓓ {7}

54 The two straight lines: 3x = 7, 2y = 9 are ..... .

ⓐ parallel ⓑ coincident
ⓒ intersecting and not perpendicular ⓓ perpendicular

FOLLOW US

55 If $x \in R - \{0, 1\}$, then $\frac{1-x}{x} \div \frac{x-1}{x}$ in simplest form is .....

(a) 1 (b) −1 (c) $x - 1$ (d) x

56 The number of solutions of the two equations: $x + y = 2$, $y + x = 3$ in $R \times R$ is .....

(a) 0 (b) 1 (c) 2 (d) 3

57 If A is an event of the sample space (S) of a random experiment and $P(\acute{A}) = P(A)$, then $P(A)$ = ...

(a) $\frac{1}{2}$ (b) $\frac{1}{3}$ (c) $\frac{2}{3}$ (d) 1

58 If $A \subset B$, then $P(A - B)$ = ...

(a) P(A) (b) P(B) (c) zero (d) 1

59 The set of zeroes of the function f: $f(x) = \frac{x^2 - 9}{x - 2}$ is ..... .

(a) {2} (b) $R - \{2\}$ (c) {3 , −3} (d) {3 , −3, 2}

60 The common domain of the two fraction $\frac{x}{x+1}, \frac{x+2}{x^2+4}$ is ..... .

(a) {−1} (b) {−1 , −4} (c) $R - \{-1\}$ (d) {−1 , 2 , −2}

61 If A , B are two mutually exclusive events from the sample space of a random experiment, then $P(A \cap B)$ = ...

(a) zero (b) 1 (c) $\frac{1}{2}$ (d) −1

62 The domain of the multiplicative inverse of the algebraic fraction $\frac{x-2}{x^3+27}$ is ..... .

(a) $R - \{2\}$ (b) $R - \{-3 , 2\}$ (c) $R - \{2 , -3 , 3\}$ (d) $R - \{-3 , 3\}$

63 If A and B are two mutually exclusive events of a sample space of a random experiment, then $P(A \cap B)$ = ...

(a) P(A) (b) P(B)
(c) zero (d) Ø

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64 In an experiment of throwing a fair die once, the probability of appearing a prime number is ..... .

(a) $\frac{1}{2}$ (b) $\frac{1}{3}$ (c) $\frac{2}{3}$ (d) $\frac{3}{4}$

65 If the two straight lines representing the two equations : $x + 3y = 4$, $x + ay = 7$ are parallel, then a = ...

(a) 3 (b) 4 (c) 7 (d) 11

66 If a fair die is rolled once , then the probability of appearing a number less than or equal 3 equals .....

(a) $\frac{1}{2}$ (b) $\frac{1}{3}$ (c) $\frac{2}{3}$ (d) $\frac{1}{6}$

67 If there are an infinite number of solutions in $R \times R$ of the two equations: $x + 4y = 7$, $3x + ky = 21$, then k = ...

(a) 7 (b) 4 (c) 12 (d) 21

68 If $\grave{A}$ is the complementary event of A in the sample space of a random experiment, Then $\grave{A} \cup A$ = ...

(a) S (b) 1 (c) $\frac{1}{2}$ (d) Ø

69 If the probability of the failure of a student is 0.2, then the probability of his success is ..... .

(a) 8 (b) 1 (c) $\frac{1}{5}$ (d) $\frac{4}{5}$

Q1: CHOOSE THE CORRECT ANSWER — ACCUMULATIVE

1 If $a^2 - b^2 = 18$, $a + b = 6$, then $a - b =$ ..... .

(a) 3 (b) 24 (c) 71 (d) 108

2 If $6^x = 12$, then $6^{x+1} =$ ..... .

(a) 66 (b) 13 (c) 27 (d) 72

3 If $a^2b = 9$, $ab^2 = 3$, then $ab =$ ..... .

(a) 27 (b) 12 (c) 6 (d) 3

4 If $x^3 = \frac{1}{8}$, then $x =$ ..... .

(a) $\frac{1}{2}$ (b) $\frac{1}{3}$ (c) 3 (d) -3

5 If $-1 < x < 3$, $x \in R$, then $(x + 1) \in$ ..... .

(a) {0 , 3} (b) [−1 , 3[(c) {0 , 4} (d)]0 , 4[

6 $x^3y^{-3} = 8$, then $\frac{y}{x} =$ ..... .

(a) $\frac{1}{512}$ (b) $\frac{1}{8}$ (c) $\frac{1}{2}$ (d) 2

7 $R - Q =$ ..... .

(a) Z (b) $\grave{Q}$ (c) Ø (d) R^+

8 If $x - y = 5$, $x + y = \frac{1}{5}$, then $x^2 - y^2 =$ ..... .

(a) $\frac{1}{25}$ (b) 1 (c) 25 (d) 5

9 The S.S of $x^2 + 16 = 0$ is ..... .

(a) {4} (b) {-4}
(c) {4 , -4} (d) Ø

FOLLOW US

10 $2^{100} = 2^{99} + \ldots\ldots\ldots$.

(a) 2 (b) 1 (c) 2^{99} (d) 99

11 If $2^{x-4} = \frac{1}{16}$, then x = ...

(a) $\frac{1}{4}$ (b) $\frac{1}{3}$ (c) $\frac{1}{2}$ (d) 0

12 If X = {a , a^3}, then a may be equal to ..... .

(a) –1 (b) 0 (c) 1 (d) 3

13 The volume of the sphere whose radius length is r equals ..... .

(a) $\frac{4}{3}\pi r^3$ (b) $\frac{3}{4}\pi r^3$ (c) $\frac{4}{3}\pi r^2$ (d) $4\pi r^2$

14 $x^2 - y^2 = 16$, and x + y = 8, then x – y = ...

(a) 2 (b) 1 (c) 24 (d) 32

15 $(\sqrt{7} - 2)(\sqrt{7} + 2) = \ldots\ldots\ldots$.

(a) 11 (b) 3 (c) 28 (d) $\sqrt{7} + 4$

16 $R_+ \cup R_- = \ldots\ldots\ldots$.

(a) R* (b) R (c) Ø (d) $[0 , \infty[$

17 Half of $2^{20} = \ldots\ldots\ldots$.

(a) 2^5 (b) 5^4 (c) 2^{19} (d) 2^{10}

18 If $2^x = 8$, then $x^2 = \ldots\ldots\ldots$.

(a) 2 (b) 3 (c) 4 (d) 9

19 The sum of real numbers in the interval]–3 , 3] equals ..... .

(a) 3 (b) zero

(c) –3 (d) can not sum

Q2: ANSWER THE FOLLOWING

1 If A , B are two events of the sample space of a random experiment and $P(A) = 0.3$, $P(B) = P(\grave{B})$, $P(A \cap B) = 0.2$

Find: (a) $P(A \cup B)$ (b) $P(A - B)$

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2 If the set of zeroes of the function f: $f(x) = \frac{x^2 - ax + 16}{x + b}$, is {4} and its domain is R – {2}, find the value of each of a and b

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3 A two-digit number, the sum of its two digits is three times of its units digit and its tens digit exceeds its units digit by 4 Find this number.

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4 Find n(x) in the simplest form, showing the domain of n where:

$n(x) = \frac{3x}{x^2 - x - 2} + \frac{x - 1}{1 - x^2}$

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5 If A , B are two events of the sample space of a random experiment and $P(A) = \frac{1}{2}$, $P(B) = \frac{1}{3}$, Find $P(A \cup B)$ in each of the following two cases:

(a) If $P(A \cap B) = \frac{1}{8}$

(b) If A and B are two mutually exclusive events.

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6 Find n(X) in the simplest form, showing the domain where:

$$n(x) = \frac{x^2 - 4}{x^2 - 5x + 6} - \frac{5}{x - 3}$$

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7 Find in R the S.S equation using the general formula: $x^2 - 2x - 6 = 0$ in R "to the nearest one decimal place"

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8 Find in the simplest form, showing the domain: $n(x) = \frac{x^2 + 2x + 4}{x^3 - 8} + \frac{x^2 - 2x - 3}{x^2 - 5x + 6}$

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9 The perimeter of a rectangle is 18 cm. and its area is 18 cm^2.
Find its two dimensions.

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10 Find the value of each of a, b. given that (3 , –1) is a solution for the two equations: ax + by = 5 , 3ax + by = 17

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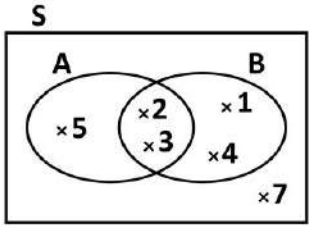
11 If the opposite figure represents the two events A and B in the sample space (S) of a random experiment, Find:



ⓐ P (A ∩ B) ⓑ P (A ∪ B)

ⓒ P (A – B)

12 Find n (x) in its simplest form, showing the domain of n where :

$$n(x) = \frac{x^2 + 2x}{x^3 - 27} \div \frac{x + 2}{x^2 + 3x + 9}$$

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13 Find in the simplest form, showing the domain: $n(x) = \frac{x^3 - 1}{x^2 - 2x + 1} \times$

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14 Find in R the S.S of each equation using the general formula: $x^2 - x = 4$ in R "to the nearest one decimal place"

.....

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15 If A and B are two events of the sample space of a random experiment ,$P(A) = 0.3$, $P(B) = 0.6$, Find $P(A \cup B)$ in each of the following cases:

ⓐ A and B are mutually exclusive events

ⓑ $P(A \cap B) = 0.2$

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.....

16 Find n(x) in the simplest form, showing the domain of n where:

$n(x) = \frac{3x - 6}{x^2 - 4} - \frac{9}{2 - x - x^2}$, Find: n(1) if possible.

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17 Find in R × R the solution set of two equations:

$y + 2x = 7$, $(y + 2x - 8)^2 + x^2 = 5$

.....

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18 If the domain of $n(x) = \frac{b}{x} + \frac{9}{x+a}$, $R - \{0, 4\}$, $n(5) = 2$.

Find the value of a and b

.....

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.....

19 If A , B are two events of the sample space of a random experiment ,$P(A) = 0.8$, $P(B) = 0.7$, $P(A \cap B) = 0.6$

Find: (a) $P(A \cup B)$ (b) The probability of non occurrence of A

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20 Find in $R \times R$ the solution set of the following two equations algebraically:

$x - y = 1$, $3x + y = 7$

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21 If $f: f(x) = \frac{x^2 + k}{x^2 - mx + 6}$, its domain is $R - \{2, 3\}$, $f(4) = 9$,

Find: m, k

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22 The sum of two real numbers is 9 and the difference between their squares equals 45. Find the two numbers.

.....

23 If $n(x) = \frac{x^2 + cx + 12}{x^2 + 3x + a}$, the domain of $n = R - \{3, b\}$, $n(4) = 6$

Find the values of a, b and c

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24 If A , B are two events in the sample space of a random experiment:

$P(A) = 0.4$, $P(B) = 0.7$, $P(A \cup B) = 0.8$

Find: (a) $P(A \cap B)$ (b) $P(A - B)$

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25 Find in the simplest form, showing the domain: $n(x) = \frac{x^3 - 8}{x^2 - 9} \times \frac{x + 3}{x^2 + 2x + 4}$

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26 If $n(x) = \frac{x^2 - 2x}{x^2 - 3x + 2}$ Find:

(a) $n^{-1}(x)$ in the simplest form, showing the domain of n^{-1}

(b) The value of n^{-1}, if it is possible.

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27 Find in $R \times R$ the solution set of the following two equations algebraically: $x - y = 0$, $x^2 + xy + y^2 = 27$

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28 Find in R the S.S of equation using the general formula:
$2x^2 - 4x + 1 = 0$ in R "to the nearest two decimal places"

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29 If $n_1(x) = \frac{2x}{2x+8}$, $n_2(x) = \frac{x^2+4x}{x^2+8x+16}$, prove that: $n_1 = n_2$

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30 If the set of zeroes of the function f: $f(x) = \frac{x^2 - ax + 9}{bx + 4}$, is {3}
and its domain is R – {2}
Find: the value of each of a and b

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31 Find n (x) in the simplest form, showing the domain of n:

$n(x) = \frac{x^3 - 8}{x^2 + x - 6} \div \frac{x^2 + 2x + 4}{x + 3}$

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32 A rectangle is with a length more than its width by 4 cm. If the perimeter of the rectangle is 28 cm. Find the area of the rectangle

.....

.....

33 Find n (x) in the simplest form, showing the domain of n :

$$n(x) = \frac{2x + 6}{x^2 + x - 6} - \frac{x^2 - 6x}{x^2 - 8x + 12}$$

.....

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34 Find in R the S.S of equation using the general formula:

$x(x - 1) = 4$ in R "to the nearest one decimal place"

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35 If A and B are two events of the sample space of a random experiment ,$P(B) = \frac{1}{3}$, $P(A - B) = \frac{1}{4}$, Find P (A) if:

ⓐ $P(A \cap B) = \frac{1}{12}$ ⓑ $B \subset A$

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36 Find in R × R the solution set of the following two equations algebraically:

$x - y = 2$, $x^2 + y^2 = 34$

.....

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37 Two acute angles in a right-angled triangle, the difference between their measures is 50°, Find the measure of each angle

.....

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38 Find n(x) in the simplest form, showing the domain of n where:

$$n(x)= \frac{x-3}{x^2-7x+12} - \frac{x-3}{3-x}$$

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39 Find in R the S.S of equation using the general formula: $x^2 + 3x - 3 = 0$ in R "to the nearest one decimal place"

.....

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40 A right-angled triangle of hypotenuse length 13 cm, and its perimeter is 30 cm. Find the lengths of the other two side

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41 Find in the simplest form, showing the domain: $n(x) = \frac{x^2-x-6}{x^2-4} \times \frac{x^2-2x}{x-3}$

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42 A bag contains 20 identical cards numbered from 1 to 20 t a card is randomly drawn. Find the probability that the number on the drawn card is :

(a) divisible by 3 (b) divisible by 3 or 5

.....

.....

43 Find in R the S.S of equation using the general formula: $x^2 - 2x - 6 = 0$ in R "to the nearest one decimal place"

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44 If A and B are two events from the sample space of a random experiment , $P(A) = 0.5$, $P(A \cup B) = 0.8$ and $P(B) = 2x$, then calculate the value of x if :

(a) $A \subset C$ (b) $P(A \cap B) = 0.1$

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45 If $n(x) = \frac{x^2 - 5x}{x^2 - 6x + 5}$, find $n_1(x)$ in the simplest form, showing the domain of n^{-1}

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46 Find in R × R the solution set of the following two equations algebraically:

$x - y = 1$, $2x + y = 8$

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47 Graph the function f: $f(x) = x^2 - 4x + 3$ in the interval $[-1, 5]$ and from the graph, find :

(a) The minimum value of the function.
(b) The equation of the axis of symmetry
(c) The S.S of the equation $f(x) = 0$

المراجعة رقم (3)

الترم الثانى

بسم الله الرحمن الرحيم

Question (1) Choose the correct answer.

1) If L_1 intersect L_2, Then there are ..... solution.

A) 0 B) 1 C) 2 D) infinity

2) Any number other 0 with indices 0 equals .....

A) 1 B) 2 C) 3 D) infinity

3) If L_1 parallel to L_2, Then there are ..... solution.

A) 0 B) 1 C) 2 D) infinity

4) If L_1 coincident with L_2, Then there are ..... solution.

A) 0 B) 1 C) 2 D) infinity

5) If you find that the two equations are different forms of the two equation, Then there are ..... solution.

A) 0 B) 1 C) 2 D) infinity

6) If $m_1 \neq m_2$, Then there are ..... solution.

A) 0 B) 1 C) 2 D) infinity

7) If $m_1 = m_2$ and the point of intersection with Y axis are equal, Then there are ..... solution.

A) 0 B) 1 C) 2 D) infinity

8) If $m_1 = m_2$ and the point of intersection with Y axis are different, Then there are ..... solution.

A) 0 B) 1 C) 2 D) infinity

9) The number of solution of the first degree function = ... solution.

A) 0 B) 1 C) 2 D) infinity

10) The point of intersection of two straight lines x + 3 = 0 and y = 5 is …….

A) (3 , 5) B) (-3 , 5) C) (3 , -5) D) (-3 , -5)

11) If the two straight lines x + 2y = 5 and 3x + ay = 15 have an infinity number of solution, Then a = ……

A) 2 B) 5 C) 6 D) 15

12) The point of intersection of two straight lines x + 2 = 0 and y = x is …….

A) (2 , 2) B) (2 , 0) C) (-2 , -2) D) (0 , 0)

13) The point of intersection of the two equations x + 1 = 2 and y -1 = 3 in the ……. Quadrant.

A) first B) second C) third D) fourth

14) The two straight lines x + 5y = 3 and 4x + 20y = 11 are ……

A) perpendicular B) intersecting C) parallel D) coincident

15) The two straight lines x - y = 3 and x + y = 3 are ……

A) perpendicular B) intersecting C) parallel D) coincident

14) The two straight lines 3x = 7 and 2y = 9 are ……

A) perpendicular B) intersecting C) parallel D) coincident

15) $x - \frac{1}{2}y = 4$ and 2x – y = 2 have …….. solution.

A) 0 B) 1 C) 2 D) infinity

16) The additive identity element is ……

A) 0 B) 1 C) 2 D) -1

17) The multiplicative identity element is ……

A) 0 B) 1 C) 2 D) -1

18) In second degree equation if the curve intersects X axis in 2 points then there are …….. solution.

A) 0 B) 1 C) 2 D) infinity

19) In second degree equation if the curve intersects X axis in 1 points then there are …….. solution.

A) 0 B) 1 C) 2 D) infinity

20) In second degree equation if the curve doesn't intersect X axis then there are …….. solution.

A) 0 B) 1 C) 2 D) infinity

21) In the general formula if the value of $b^2 - 4ac$ is greater than 0 then there are …….. solution.

A) 0 B) 1 C) 2 D) infinity

22) In the general formula if the value of $b^2 - 4ac$ is less than 0 then there are …….. solution.

A) 0 B) 1 C) 2 D) infinity

23) In the general formula if the value of $b^2 - 4ac$ is equal 0 then there are …….. solution.

A) 0 B) 1 C) 2 D) infinity

24) If the curve of the quadratic function passes through the points (-1 , 0), (0 , -4) and (4 , 0), Then the S.S of the equation is ……..

A) {0 , -1} B) {-4 , 0} C) {-1 , 4} D) {4 , -4}

25) If the S.S of the equation : $4x^2 + 4x + k = 0$ is $\{\frac{-1}{2}\}$, Then k = ……..

A) 1 B) -1 C) 2 D) -8

26) If X ∈ R, Then the equation $x^2 - 3x + 5 = 0$ has …… roots.

A) 0 B) 1 C) 2 D) infinity

27) If X ∈ R, Then the equation $x^2 + x + 1 = 0$ has …… roots.

A) 0 B) 1 C) 2 D) infinity

28) If X ∈ R, Then the equation $-4x^2 - 10x + 12 = 0$ has …… roots.

A) 0 B) 1 C) 2 D) infinity

29) The set of zeros of the function F : F(x) = 2x is ……..

A) {0} B) {2} C) R - {0} D) R - {2}

30) The set of zeros of the function F : $F(x) = x^2 - 25$ is ……..

A) R B) {5} C) {-5 , 5} D) ϕ

31) The set of zeros of the function F : $F(x) = x^2 + 25$ is ……..

A) R B) {5} C) {-5 , 5} D) ϕ

32) The set of zeros of the function F : $F(x) = x^2 - 5x + 6$ is ……..

A) R – {5 , 6} B) {5 , 6} C) {2 , 3} D) R – {2 , 3}

33) If {-2 , 2} is the set of zeros of function F : $F(x) = x^2 + a$, Then a = ……..

A) -2 B) -4 C) 2 D) 4

34) If ϕ is the set of zeros of function F : $F(x) = x^2 + a$, Then a = ……..

A) -2 B) -4 C) 4 D) 16

35) If {2} is the set of zeros of function F : $F(x) = x^3 + a$, Then a = ……..

A) 2 B) -8 C) 8 D) $\sqrt[3]{2}$

36) The domain of the function F : $F(x) = \frac{x+2}{x+1}$ is ……..

A) R – {-1} B) R - {-1 , 2} C) {-1 , 2} D) {-1}

37) The domain of the function F : F(x) = $\frac{x+2}{x^2-1}$ is .....

A) R – {-1 , 1} B) R - {-1 , 1 , 2} C) {-1 , 1 , 2} D) {-1 , 1}

38) If R - {5} is the domain of the function F: F(x) = $\frac{x}{x-k}$, Then k = ...

A) -5 B) 5 C) ±5 D) 25

39) The probability of the impossible event is .....

A) -1 B) 0 C) 1 D) $\frac{1}{2}$

40) The probability of the certain event is .....

A) -1 B) 0 C) 1 D) $\frac{1}{2}$

41) The sum of all probabilities of all outcomes in a random experiment = ...

A) -1 B) 0 C) 1 D) $\frac{1}{2}$

42) The probability of less likely is equal .....%

A) 25 B) 50 C) 75 D) 100

43) The probability of equally likely as unlikely is equal .....%

A) 25 B) 50 C) 75 D) 100

44) The probability of more likely is equal .....%

A) 25 B) 50 C) 75 D) 100

Question (2) Complete the Following.

1) If L_1 intersect L_2, Then there are ..... solution.

2) Any number other 0 with indices 0 equals .....

3) If L_1 parallel to L_2, Then there are ..... solution.

4) If L_1 coincident with L_2, Then there are ..... solution.

5) If you find that the two equations are different forms of the two equation, Then there are …….. solution.

6) If $m_1 \neq m_2$, Then there are …….. solution.

7) If $m_1 = m_2$ and the point of intersection with Y axis are equal, Then there are …….. solution.

8) If $m_1 = m_2$ and the point of intersection with Y axis are different, Then there are …….. solution.

9) The number of solution of the first degree function = …….. solution.

10) The point of intersection of two straight lines x + y = 7 and y = 2x + 1 is …….

11) If the two straight lines x + 2y = 5 and 4x + ay = 20 have an infinity number of solution, Then a = …….

12) The point of intersection of two straight lines x + 3y = 8 and y = x is …….

13) The point of intersection of the two equations x - y = 2 and 3y – 8 = x in the ……. Quadrant.

14) The two straight lines 4x + 8y = 4 and 2x + 4y = 2 are ……

15) The two straight lines 4x + 8y = 3 and 2x + 4y = 3 are ……

14) The two straight lines x – y = 5 and 2y = -6 are ……

15) y = 4 + x and x + y = 4 have …….. solution.

16) The additive identity element is ……

17) The multiplicative identity element is ……

18) In second degree equation if the curve intersects X axis in 2 points then there are …….. solution.

19) In second degree equation if the curve intersects X axis in 1 points then there are …….. solution.

20) In second degree equation if the curve doesn't intersect X axis then there are …….. solution.

21) The general formula = ……

22) In the general formula if the value of $b^2 - 4ac$ is greater than 0 then there are …….. solution.

23) In the general formula if the value of $b^2 - 4ac$ is less than 0 then there are …….. solution.

24) In the general formula if the value of $b^2 - 4ac$ is equal 0 then there are …….. solution.

25) If the curve of the quadratic function passes through the points (-1 , 0), (0 , -4) and (4 , 0), Then the S.S of the equation is ……..

26) If the S.S of the equation : $4x^2 + 4x + k = 0$ is $\{\frac{-1}{2}\}$, Then k = ……..

27) If $X \in R$, Then the equation $x^2 - 3x + 5 = 0$ has …… roots.

28) If $X \in R$, Then the equation $x^2 + x + 1 = 0$ has …… roots.

29) If $X \in R$, Then the equation $-4x^2 - 10x + 12 = 0$ has …… roots.

30) $(a \pm b)^2$ = ……

31) If F(x) = a, where $a \in R^*$, Then Z(x) = ……..

32) If F(x) = 5, Then Z(F) = ……..

33) The set of zeros of the function F : F(x) = x – 5 is ……

34) The set of zeros of the function F : F(x) = 10 is ……..

35) The set of zeros of the function F : $F(x) = x^2 - 36$ is ……..

36) The set of zeros of the function F : $F(x) = x^2 + 49$ is ……..

37) The set of zeros of the function F : $F(x) = x^2 - 5x - 6$ is ……..

38) If {-5 , 5} is the set of zeros of function F : F(x) = x^2 + a, Then a = ……..

39) If ϕ is the set of zeros of function F : F(x) = x^2 + a, Then a is ……

40) If {5} is the set of zeros of function F : F(x) = x^3 + a, Then a = ……..

41) If {-4} is the set of zeros of function F : F(x) = x^3 + a, Then a = ……..

42) …….. is all real numbers except the set of zeros of the denominator.

43) …….. is the set of value which make it's numerator equals zero and it's denominator doesn't equal zero.

44) The set of zero of algebraic fractional function =
…… - ……..

45) The domain of the function F : F(x) = $\frac{x^2-1}{x-9}$ is ……..

46) The domain of the function F : F(x) = $\frac{x+2}{x^6-1}$ is ……..

47) If R - {2} is the domain of the function F : F(x) = $\frac{x}{x-k}$, Then k = ……..

48) The domain of the function F : F(x) = $\frac{x^2-1}{x}$ is ……..

49) The domain of the function F : F(x) = $\frac{x^2-1}{9}$ is ……..

50) It's said that the two algebraic fractions n_1 and n_2 are equal when :

A) ……

B) ……

115) …… is the set of all possible outcomes of a random experiment.

51) …….. is a subset of a sample space.

52) P(A) = $\frac{\text{……}}{\text{……}}$

53) The probability of the impossible event is ……..

54) The probability of the certain event is ……..

55) The probability of any event is between ……..

56) The sum of all probabilities of all outcomes in a random experiment = …….

57) The probability of occurrence on an event is x, Then the probability of that doesn't occur = ……..

58) The probability of less likely is equal ……%

59) The probability of equally likely as unlikely is equal ……%

60) The probability of more likely is equal ……%

61) The event of occurring one of the two events A and B at least is ……..

62) $P(A \cap B)$ = ————

63) If $A \subset B$, Then $(A \cap B)$ = …….

64) If A and B are mutually exclusive $(A \cap B)$ = …….

65) The event of occurring the two events A and B together is ……..

66) $P(A \cup B)$ = ————

67) $P(A \cup B) = P(\ldots\ldots) + P(\ldots\ldots) - P(\ldots\ldots\ldots)$

68) $P(A \cap B) = P(\ldots\ldots) + P(\ldots\ldots) - P(\ldots\ldots\ldots)$

69) If A and B are mutually exclusive, Then $(A \cup B) = P(\ldots\ldots\ldots) + P(\ldots\ldots\ldots)$

70) After throwing a fair die the probability of appearance number greater than 0 is ……..

71) After throwing a fair die the probability of appearance number greater than 5 is ……..

72) After throwing a fair die the probability of appearance number greater

than 3 is ……..

73) If a coin is flipped once, Then the probability of appearance a tail is ……..

74) After throwing a fair die the probability of appearance number smaller than 0 is ……..

75) After throwing a fair die the probability of appearance number smaller than 6 is ……..

76) If a coin is flipped two times, Then the probability of appearance a head is ……..

77) After throwing a fair die the probability of appearance number greater than or equal 5 is ……..

78) After throwing a fair die the probability of appearance number smaller than or equal 6 is ……..

79) After throwing a fair die the probability of appearance an even number is ……..

80) After throwing a fair die the probability of appearance an odd number is ……..

81) After throwing a fair die the probability of appearance an even number greater than 3 is ……..

82) After throwing a fair die the probability of appearance an odd number less than 2 is ……..

83) After throwing a fair die the probability of appearance a prime number is ……..

84) After throwing a fair die the probability of appearance an prime number greater than 3 is ……..

85) After throwing a fair die the probability of appearance a number is divisible by 3 is ……

86) After throwing a fair die the probability of appearance a number is divisible by 6 is ……

87) For every event A, P(A) = […… , ……]

88) The complementary event of A = ……

89) The event on non occurrence of event A is …….

90) (A∪À) = …….

91) (A∩À) = …….

92) P(À) = …….

93) The event of occurrence of event A and non occurrence of event B is ……

94) The event of occurrence of event B and non occurrence of event A is ……

95) (A – B) ∪ (A∩B) = ……..

96) (B – A) ∪ (A∩B) = ……..

97) If A and B are mutually exclusive, Then (A - B) = …….

98) If A and B are mutually exclusive, Then (B - A) = …….

99) If A ⊂ B, Then (A - B) = …….

Question (3) Essay problems.

1) Find S.S for each of the following graphically.

A) 3x + y = 5 , y + 3x = 8.

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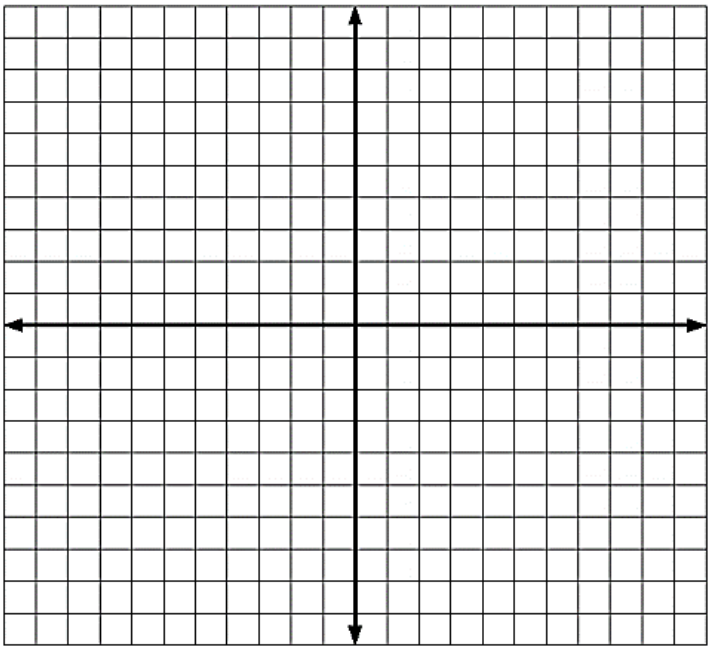

B) 3x + 4y = 24 , x – 2y = -2.

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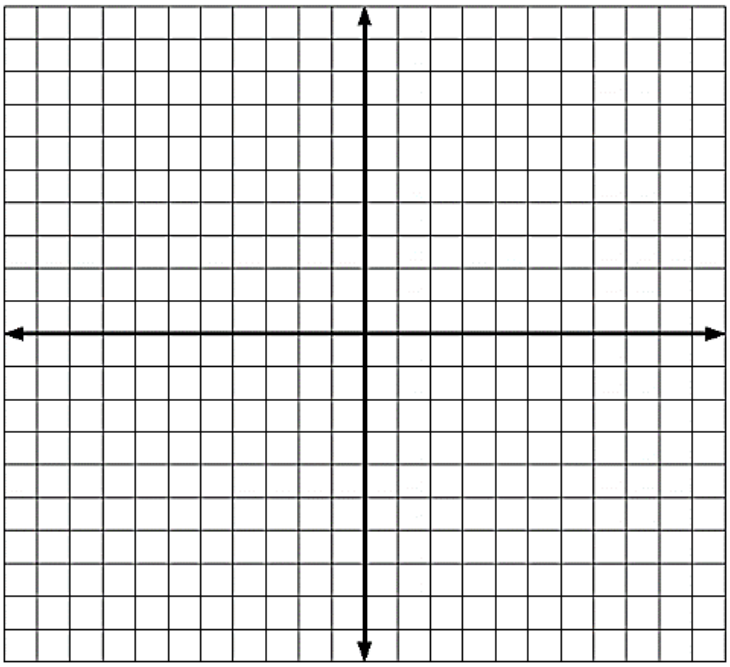

2) Find S.S for each of the following algebraically.

A) 3x + 2y = 9 , x + 2y = 8.

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B) 3x + 4y = 11 , 2x + y - 4= 0.

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C) $\frac{x}{6} + \frac{y}{3} = \frac{1}{3}$, $\frac{x}{2} + \frac{2y}{3} = 1$.

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3) Two supplementary angles the twice of the measure of the greater equal seven times the measure of the smaller, Find the measure of each angle.

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4) If the age of Mai and Yara now is 43 years and after 5 years the difference between them will be 3 years, Find the age of each of them.

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5) Find S.S for each of the following graphically.

A) $F(x) = x^2 - 2x - 4$ **[-2 , 4].**

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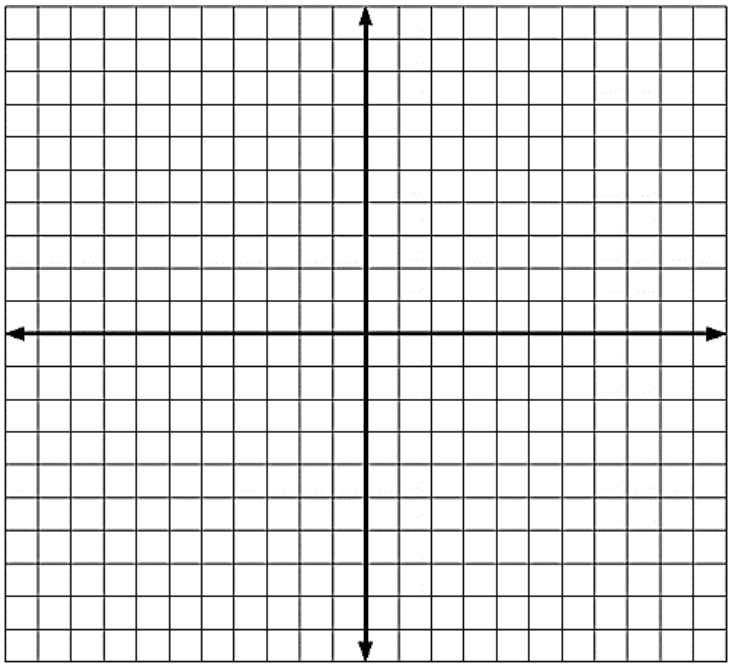

B) $F(x) = 3x - x^2 + 2$ **[-1 , 4].**

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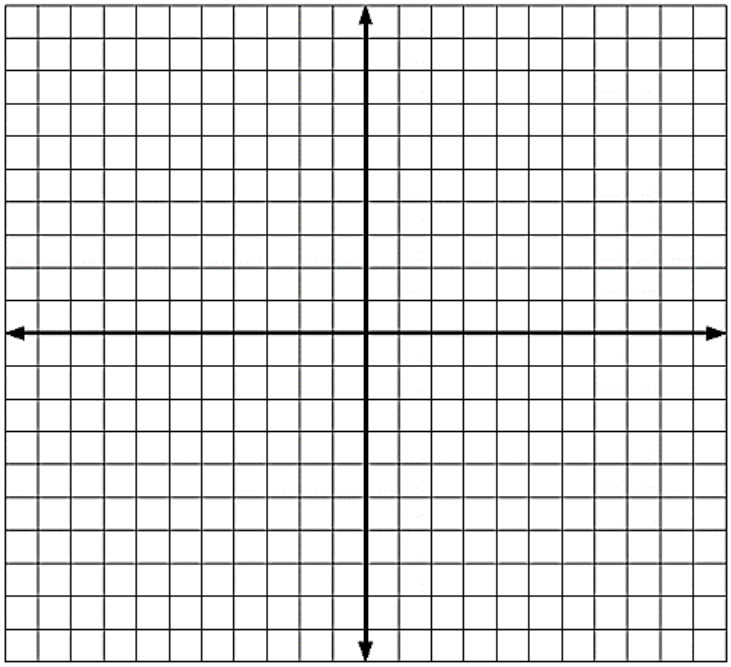

6) Find S.S for each of the following algebraically.

A) $x^2 - a4 + 1 = 0$.

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B) $3x^2 - 6x + 1 = 0$.

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C) $x(x - 1) = 4$.

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7) When the dolphin jumps over water surface it's pathway follows the relation $y = -0.2x^2 + 2x$, where y is the height of the dolphin above water surface and x is the horizontal distance in feet, Find the horizontal distance that the dolphin covers when it jumps from water till it returns again to water.

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8) Find S.S for each of the following.

A) $y - x = 2$, $x^2 + xy - 4 = 0$.

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B) $x - 2y - 1 = 0$, $x^2 - xy = 0$.

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C) $y + x = 2$, $\frac{1}{x} + \frac{1}{y} = 2$.

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9) The length of rectangle is 3 cm more than it's width and it's area is 28 cm^2, Find it's perimeter.

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10) A right angled triangle of hypotenuse length 13 cm and perimeter 30 cm, Find the length of the other two sides.

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11) The difference between two real numbers is 5 and there product is 84, Find the two numbers.

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12) Consider a digits in units place is twice the digit in the tens place of two digit number, If the product of the two digits equals the half of the original number, Find this number.

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13) Find the set of zeros of each of the following.

A) $F(x) = x^2 - 2x - 1$.

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B) $F(x) = x^2 - 81$.

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C) $x^3 + 343$.

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14) Determine the domain of F : $F(x) = \frac{2x+1}{x^2-5x+6}$, Then find F(1) and F(0).

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15) Find the common domain for F : $F(x) = \frac{x+1}{x^2-6x+5}$ and $F(x) = \frac{x^2}{x^2-2x}$.

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16) If the domain of the function F : F(x) = $\frac{x-1}{x^2-ax+9}$ is R – {3}, Find the value of a.

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17) Reduce each of the following to the simplest form.

A) F(x) = $\frac{x^2-4}{x^3-8}$.

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B) F(x) = $\frac{(x-2)^2-1}{x(x-3)}$.

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18) In each of the following find if $F_1 = F_2$ of not.

A) $F_1(x) = \frac{x-1}{x}$, $F_2(x) = \frac{(x-1)(x^2+1)}{x(x^2+1)}$.

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B) $F_1(x) = \frac{x^2-4}{x^2+x-6}$, $F_2(x) = \frac{x^2-x-6}{x^2-9}$.

C) $F_1(x) = \frac{x^3-1}{x^3+x^2+x}$, $F_2(x) = \frac{(x-1)(x^2+1)}{x+x^3}$.

19) If the simplest form of the algebraic fraction $F(x) = \frac{x^2-4x+4}{x^2-a}$ is $F(x) = \frac{x-2}{x+2}$, Find the value of a.

20) In each of the following find F(x) and find F(0) and F(1).

A) $F(x) = \frac{x}{x-4} - \frac{x+4}{x^2-16}$.

B) $F(x) = \frac{x-5}{2x^2-13x+15} - \frac{x+3}{15x-18-2x^2}$.

C) $F(x) = \frac{2}{x+3} - \frac{x+3}{x^2+3x}$.

D) $F(x) = \frac{x-3}{x^2-7x+12} - \frac{x-3}{3-x}$.

20) In each of the following find F(x) and find F(0) and F(1).

A) $F(x) = \frac{x^3-1}{x^2-2x+1} \times \frac{2x-2}{x^2+x+1}$.

B) $F(x) = \frac{x^2-2x-3}{5x^3-135} \times \frac{5x^2+15x+45}{x+1}$.

C) $F(x) = \frac{x^2-2x+1}{x^3-1} \div \frac{x-1}{x^2+x+1}$.

D) $F(x) = \frac{x^2-3x+2}{1-x^2} - \frac{3x-15}{x^2-6x+5}$.

21) If A and B are two sample space of a random experiment, Find the ordered.

A) P(A) = $\frac{3}{5}$, P(B) = $\frac{4}{5}$ and P(A∩B) = $\frac{3}{15}$, Then P(A∪B) =……..

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A) P(A) = $\frac{1}{2}$, P(B) = $\frac{3}{8}$ and P(A∩B) = $\frac{5}{16}$, Then P(A∪B) =……..

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A) P(A) = $\frac{2}{9}$, P(B) = $\frac{4}{9}$ and P(A∪B) = $\frac{7}{9}$, Then P(A∩B) =……..

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A) P(A) = $\frac{5}{10}$, P(B) = $\frac{3}{10}$ and P(A∪B) = $\frac{9}{10}$, Then P(A∩B) =……..

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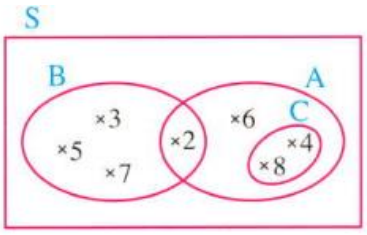
22)

Use the opposite Venn diagram to find :



1 P (A ∩ B) | 2 P (A ∪ B) | 3 P (A ∩ C)

4 P (A ∪ C) | 5 P (B ∩ C) | 6 P (B ∪ C)

7 P (A) + P (B) – P (A ∩ B)

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23) A box contains 12 balls, 5 of them are blue, 4 of them are red and the rest are white, A ball is drawn randomly from the box, Find the probability of the drawn ball is :

A) Blue

B) Not blue

C) Blue or red

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24) A set of cards are numbered from 1 to 30, If a card is randomly drawn, Find the probability of that the card is carrying :

A) Number multiple of 6

B) Number multiple of 8

C) Number multiple of 6 or 8

D) Number multiple of 6 and 8 together

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25) If A and B are two mutually exclusive events from the sample space of random experiment the probability of occurrence of event B is three times the probability of occurrence of event A, The probability of occurrence of one of them at least is 0.64, Find the probability of occurrence of each of the two events A and B.

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26) If S is a sample space of a random experiment, A ⊂ S, $\grave{A}$ is the complementary event of the event A and S = {1, 2, 3, 4, 5, 6}, Complete the following table.

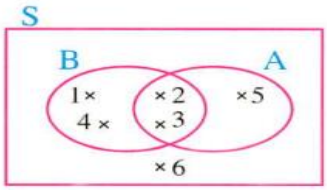
event A	event $\grave{A}$	P (A)	P ($\grave{A}$)	P (A) + P ($\grave{A}$)
{2 , 4 , 6}				
	{3 , 6}			
{5}				
{1 , 2 , 3 , 4 , 5 , 6}				

27)

In the opposite figure :

If A and B are two events of the sample space S of a random experiment , **then find :**

1. P (A ∩ B)
2. P (A – B)
3. The probability of non occurrence of the event A



(Cairo 17) «$\frac{1}{3}$, $\frac{1}{6}$, $\frac{1}{2}$»

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28)

A box contains 20 balls which have the same shape , size and weight are well mixed , 8 of them are red , 7 are white and the rest of the balls are green. A ball is drawn randomly. **Find the probability that the drawn ball is :**

1 Red. 2 White or green. 3 Not white. « $\frac{2}{5}$, $\frac{3}{5}$, $\frac{13}{20}$ »

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29)

A classroom contains 40 students. 18 of them read Al-Akhbar Newspaper , 15 read Al-Ahram Newspaper and 8 read both Newspapers. If a student is selected randomly **, calculate the probability that the student :**

1 Reads Al-Akhbar Newspaper.
2 Does not read Al-Akhbar Newspaper.
3 Reads Al-Ahram Newspaper.
4 Reads both Newspapers.
5 Reads Al-Akhbar Newspaper only.
6 Reads Al-Ahram Newspaper only.
7 Reads Al-Akhbar only or Al-Ahram only.

« $\frac{9}{20}$, $\frac{11}{20}$, $\frac{3}{8}$, $\frac{1}{5}$, $\frac{1}{4}$, $\frac{7}{40}$, $\frac{17}{40}$ »

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المراجعة رقم (4)

الترم الثانى

REVISION 1

1) Find algebraically the S.S in $\mathbb{R} \times \mathbb{R}$ of the two equations :

$x - y = 4$, $x + y = 4$

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2) Find algebraically the S.S in $\mathbb{R} \times \mathbb{R}$ of the two equations :

$x - y = 4$, $3x + 2y = 7$

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3) Find algebraically the S.S in $\mathbb{R} \times \mathbb{R}$ of the two equations :

$x - 3y = 6$, $2x + y = 5$

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4) Find algebraically the S.S in $\mathbb{R} \times \mathbb{R}$ of the two equations :

$x + 2y = 4$, $2x - y = 3$

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5) Find algebraically the S.S in $\mathbb{R} \times \mathbb{R}$ of the two equations :

$3x + 4y = 24$, $x - 2y = -2$

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6)Find algebraically the S.S in $\mathbb{R} \times \mathbb{R}$ of the two equations :

$2x - y = 3$, $x + 3y = 5$

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7) Find algebraically the S.S in $\mathbb{R} \times \mathbb{R}$ of the two equations :

$3x + 4y = 11$, $2x + y - 4 = 0$

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8) Find algebraically the S.S in $\mathbb{R} \times \mathbb{R}$ of the two equations :

$2y = 3x - 1$, $x - y + 1 = 0$

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9) Find graphically and algebraically the S.S in $\mathbb{R} \times \mathbb{R}$ of the two equations :

$y = x + 1$, $y = 2x - 1$

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10) Find graphically and algebraically the S.S in $\mathbb{R} \times \mathbb{R}$ of the two equations :

$2x + y = 1$, $x + 2y = 5$

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11) Find algebraically the S.S in $\mathbb{R} \times \mathbb{R}$ of the two equations :

1) $x - y = 0$, $xy = 9$

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12) Find algebraically the S.S in $\mathbb{R} \times \mathbb{R}$ of the two equations :

$x - y = 2$, $x^2 + y^2 = 20$

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13) Find algebraically the S.S in $\mathbb{R} \times \mathbb{R}$ of the two equations :

$x + y = 7$, $x^2 + y^2 = 25$

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14) Find algebraically the S.S in $\mathbb{R} \times \mathbb{R}$ of the two equations :

$x = y + 2$, $x^2 + xy = 0$

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15) Find algebraically the S.S in $\mathbb{R} \times \mathbb{R}$ of the two equations :

$x + y = 3$, $xy + y^2 = 6$

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16) Find algebraically the S.S in $\mathbb{R} \times \mathbb{R}$ of the two equations :

$y - x = 2$, $x^2 + xy - 4 = 0$

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17) Find algebraically the S.S in $\mathbb{R} \times \mathbb{R}$ of the two equations :

$y + 2x = 7$, $2x^2 + x + 3y = 19$

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18) Find the solution set of the equation $3x^2 - 6x + 1 = 0$ rounding the results to two decimal places.

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19) Find the solution set of the equation x^2 - 2 x - 6 = 0 rounding the results to two decimal places.

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20) Find the solution set of the equation x^2 + 3 x - 3 = 0 using general formula , rounding the results to two decimal places.

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21) Find the solution set of the equation x^2 - 4 x + 1 = 0 using general formula rounding the results to two decimal places.

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22) Find the solution set of the equation $x^2 + x = 3$ using general formula rounding the results to one decimal places.

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13) Find the solution set of the equation $x^2 - x = 4$ using general formula given that $\sqrt{17} \simeq 4.12$

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14) Graph the quadratic Function $f(x) = x^2 - 4x + 3$, $x \in [-1,5]$

Then from the graph deduce :

1) The coordinates of the vertex of the curve

2) The minimum value of the function

3) the S.S in R of the equation $x^2 - 4x + 3 = 0$

25) Graph the quadratic Function $f(x) = x^2 - 1$, $x \in [-2, 2]$

Then from the graph deduce :

1) The coordinates of the vertex of the curve

2) The minimum or the maximum value of the function

3) The two roots of $f(x) = 0$

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26) Graph the quadratic Function $f(x) = 4 - x^2$, $x \in [-3, 3]$

Then from the graph deduce :

1) The two roots of $f(x) = 0$

2) Equation of axis of symmetry

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27) Graph the quadratic Function $f(x) = x^2 + 3$, $x \in [-3, 3]$

Then from the graph deduce :

1) The two roots of $f(x) = 0$

2) Equation of axis of symmetry

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28) Graph the quadratic Function $f(x) = x^2 - 2x - 3$, $x \in [-2, 4]$

Then from the graph deduce :

1) The coordinates of the vertex of the curve

2) The minimum value of the function

3) the S.S in R of the equation $x^2 - 2x - 3 = 0$

29) Graph the quadratic Function $f(x) = (x-2)^2, x \in [-1, 5]$

Then from the graph deduce : The S.S of the equation $f(x) = 0$

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30) The difference between two numbers is 5 and the product of them is 36 , Find the two numbers

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31) Two acute angles in right angled triangle , the difference between their measure is 40^o , find the two angles

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32) A rectangle with length more than width by 2cm , if the perimeter of the rectangle is 32 cm , find the area of the rectangle

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33) A number formed from two digits , their sum is 11 , if twice the unit digit exceed three times the tens by 2 , Find the number

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34) Choose the correct answer :

1) The solution set of the two equations x + y = 0 , x - 2 = 0 is :

a) {(0, 2)} **b)** {(2, 2)} **c)** {(-2, 2)} **d)** {(2, -2)}

2) The two straight lines : $3x$ + 5 y = 0 , $5x$ - 3 y = 0 are intersected in

a) The origin **b)** First quadrant **c)** Second quadrant **d)** Fourth quadrant

3) The solution set of the two equations x - 2 y = 1 , $3x$ + y = 10 is :

a) {(5, 2)} **b)** {(2, 4)} **c)** {(1, 3)} **d)** {(3, 1)}

4) The solution set of the two equations x - y = 0 and x y = 9 is :

a) {(0, 0)} **b)** {(-3, -3)} **c)** {(3, 3)} **d)** {(-3, -3), (3, 3)}

5) One of the solutions for the two equation: x - y = 2, $x^2 + y^2 = 20$ is :

a) (-4, 2) **b)** (2, -4) **c)** (3, 1) **d)** (4, 2)

6) If the sum of two positive numbers is 7 and their product is 12 then the two numbers are :

a) 5, 2 **b)** 2, 6 **c)** 3, 4 **d)** 1, 6

7) Two numbers their sum = 13 and their difference is 5 , then the two numbers are

a) 7, 6 **b)** 8, 5 **c)** 10, 3 **d)** 9, 4

8) Two numbers their sum = 9 and their product is 8 , then the two numbers are

a) 2, 7 **b)** 3, 6 **c)** 4, 5 **d)** 1, 8

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9) The age of ahmed is x years , then his age after 10 years is …….

a) x + 6 **b)** x - 6 **c)** x + 10 **d)** x -10

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10) The age of ahmed is x years , then his age 6 years ago is …….

a) x + 6 **b)** x - 6 **c)** x + 10 **d)** x -10

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11) The number of the solutions of the two equations x - 2y = 2 and 3x - 6y = 6 is ……

a) 1 **b)** 2 **c)** 3 **d)** an infinite

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12) If (2 , 1) is a solution of the equation 2x +ay=6 , then a = ……

a) 1 **b)** 2 **c)** 3 **d)** 6

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13) The ordered pair that satisfy the two equations : xy = 2 , x-y = 1 is….

a) (1, 2) **b)** (2, 1) **c)** (1, 1) **d)** (3, 1)

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14) If x =3 is a root of the equation : x^2 +mx = 3 , then m = …….

a) -1 **b)** -2 **c)** 2 **d)** 1

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15) The two straight lines representing the two equations 2x-y=4 , 2x-y = 3 are….

a) Parallel **b)** Coincident **c)** intersecting **d)** perpendicular

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16) The two straight lines representing the two equations 6x-9y=15 , 2x-3y = 5 are….

a) Parallel **b)** Coincident **c)** intersecting **d)** perpendicular

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17) If the two equations : x+4y = 7 , 3x + ky = 21 have infinite solutions , then k=……

a) 4 **b)** 7 **c)** 12 **d)** 21

REVISION 2

1) Find n(x) in the simplest form showing its domain where :

$$n(x) = \frac{5}{x-3} + \frac{4}{x-3}$$

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2) Find n(x) in the simplest form showing its domain where :

$$n(x) = \frac{5}{x-2} + \frac{4}{x+3}$$

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3) Find n(x) in the simplest form showing its domain where :

$$n(x) = \frac{x}{x^2 + 2x} + \frac{x-2}{x^2 - 4}$$

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4) Find n(x) in the simplest form showing its domain where :

$$n(x) = \frac{3x-4}{x^2-5x+6} + \frac{2x+6}{x^2+x-6}$$

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5) Find n(x) in the simplest form showing its domain where :

$n(x) = \frac{x^2-4}{x^2+3x+2} - \frac{x^2-2x}{x^2-x-2}$ **, then find n(0)**

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6) Find n(x) in the simplest form showing its domain where :

$$n(x) = \frac{3x}{x^2-2x} - \frac{12}{x^2-4}$$

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7) Find n(x) in the simplest form showing the domain of n where : $n(x) = \frac{12}{12x^2-3} + \frac{2}{2x-4x^2}$ then find f(0) , f(-1) if possible

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8) $n_1(x) = \frac{x}{x^2+2x}$, $n_2(x) \frac{x+2}{x^2-4}$

Find $n(x) = n_1(x) + n_2(x)$ show the domain of n.

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9) Find n(x) in the simplest form showing its domain where :

$$n(x) = \frac{x^2 - 2x + 4}{x^3 + 8} + \frac{x^2 - x - 2}{x^2 - 4}$$

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10) Find n(x) in the simplest form showing its domain where :

$n(x) = \frac{x}{x^2+2x} - \frac{x-2}{4-x^2}$ **Then find** $n(-2)$ **if possible**

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11) Find n(x) in the simplest form showing its domain where :

$n(x) = \frac{x^2+x+1}{x} \times \frac{x^2-x}{x^3-1}$

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12) Find n(x) in the simplest form showing its domain where :

$\frac{x^3-1}{x^2-x} \times \frac{x+3}{x^2+x+1}$

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13) Find n(x) in the simplest form showing its domain where :

$$n(x) = \frac{x^2-12x+36}{x^2-6x} \times \frac{4x+24}{36-x^2}$$

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14) Find n(x) in the simplest form showing its domain where :

$$n(x) = \frac{x^2-49}{x^3-8} \div \frac{x+7}{x-2}$$

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15) Find n(x) in the simplest form showing its domain where :

$$n(x) = \frac{x^2+2x-3}{x+3} \div \frac{x^2-1}{x+1}$$

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16) Find n(x) in the simplest form showing its domain where :

$$\frac{x^2-4}{x^2+3x+2} \div \frac{x^2-2x}{x^2-x-2}$$

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17) Find n(x) in the simplest form showing its domain where :

$$n(x) = \frac{x^2-3x+2}{\dot{x}^2-49} \div \frac{x-2}{x+7}$$

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18) Find n(x) in the simplest form showing its domain where :

$$n(x) = \frac{x^2+x+1}{x^2-9} \div \frac{x^3-1}{x^2-4x+3}$$

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19) Find n(x) in the simplest form showing its domain where :

$$\frac{x^3-8}{x^2-x-6} \div \frac{x^2+2x+4}{x-3}$$

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19) Find n(x) in the simplest form showing its domain where :

$$\frac{x^3-8}{x^2-x-6} \div \frac{x^2+2x+4}{x-3}$$

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20) If $n(x) = \frac{x^3+3x^2+2x}{x^2+2x}$ **find** $\boldsymbol{n^{-1}(x)}$ in the simplest form showing the domain of n^{-1} , then **find** $\boldsymbol{n^{-1}(-2)}$ if it is possible

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21) If A and B are two events in the sample space of a random experiment where P (A) = $\frac{1}{2}$, P (B) = $\frac{2}{3}$, P (A ∩ B) = $\frac{1}{3}$ then

a) Find P (A ∪ B)
b) Find P (A − B)
c) Find P (A ∪ B)`
d) Find P (A ∩ B)`
e) Find P (A`)
e) Find P (B`)

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22) If A and B are two events in the sample space of a random experiment where P (A) = 0.7 , P (B) = 0.4 , P (A ∩ B) = 0.2 then

a) Find P (A ∪ B)
b) Find P (A − B)
c) Find P (A ∪ B)`
d) Find P (A ∩ B)`
e) Find P (A`)
e) Find P (B`)

.....

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23) If A and B are two events of a random experiment where P (A) = $\frac{1}{2}$, P (B) = $\frac{1}{3}$, P (A ∩ B) = $\frac{1}{8}$ then **Find P (A ∪ B)**

.....

.....

.....

24) If A and B are two events in the sample space of a random experiment where P (A) = $\frac{3}{8}$, P (B) = $\frac{1}{2}$, P (A ∪ B) = $\frac{5}{8}$ then

a) Find P (A ∪ B) **b) Find P (A − B)**

c) Find P (A ∪ B)`** **d) Find P (A ∩ B)`

e) Find P (A`)** **e) Find P (B`)

.....

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.....

25) If A and B are two mutually exclusive events of a random experiment where P (A) = $\frac{1}{2}$, P (B) = $\frac{1}{3}$, then :

a) Find P (A ∪ B)

b) Find the probability of non occurrence of A

.....

.....

26) If A and B are two mutually exclusive events of a random experiment where P (A) = $\frac{1}{8}$, P (A ∪ B) = $\frac{3}{8}$, then :

a) Find P (B) **a) Find P (A`)**

.....

.....

.....

26) Choose the correct answer

1) $P(A) = 0 \cdot 3$, then probability of P(A`)=.....

a) 1 **b)** 0 **c)** $\frac{1}{2}$ **d)** 0.7

2) $P(A) = \frac{5}{7}$, then probability of P(A`)=.....

a) 1 **b)** 0 **c)** $\frac{2}{7}$ **d)** $\frac{2}{10}$

3) $P(A) = 30\%$, then probability of P(A`)=.....

a) 1 **b)** 0 **c)** 70% **d)** 30%

4) If a regular dice is rolled once , then the probability of getting an even number = ...

a) $\emptyset$ **b)** 0 **c)** 0.5 **d)** 0.3

5) If a regular dice is rolled once , then the probability of getting an even number = ...

a) $\emptyset$ **b)** 0 **c)** $\frac{1}{2}$ **d)** $\frac{2}{3}$

6) If A and B are two mutually exclusive events then P (A ∩ B) =.....

a) $\emptyset$ **b)** 0 **c)** 0.5 **d)** 0.3

7) If A ⊂ B , then P (A ∪ B) =.....

a) $\emptyset$ **b)** 0 **c)** P (A) **d)** P (B)

8) If A ⊂ B , then P (A ∩ B) =.....

a) $\emptyset$ **b)** 0 **c)** P (A) **d)** P (B)

9) If a regular coin is tossed once, then the probability of getting head or tail =.....

a) 0 % **b)** 25 % **c)** 50 % **d)** 100%

---

10) If a die is rolled once, then the probability of getting an odd number and even number together =.....

a) $\emptyset$ **b)** 0 **c)** 1 **d)** 0.5

---

11) If a die is rolled once, then the probability of getting an odd number or even number equals =.....

a) $\emptyset$ **b)** 0 **c)** 1 **d)** 0.5

---

12) If A and B are two events from the sample space of random experiment and if P (B)=0.7 and P (A)=0.2 , $A \subset B$
then P (A ∩ B) =.....

a) 0 **b)** 0.2 **c)** 0.7 **d)** 1

13) If A and B are two events from the sample space of random experiment and if P (B)=0.7 and P (A)=0.2 , $A \subset B$
then P (A ∪B) =.....

a) 0 **b)** 0.2 **c)** 0.7 **d)** 1

---

14) The set of zeroes of f : where f(x) = -3x is:

a) {0} **b)** {-3} **c)** {-3,0} **d)** $\mathbb{R}$

---

15) The set of zeroes of the function f where $f(x) = 2x^2$, is .....

a) $\{0\}$ **b)** $\mathbb{R} - \{0\}$ **c)** $\mathbb{R} - \{2\}$ **d)** $\mathbb{R} - \{-1\}$

---

16) The set of zeroes of the function f where $f(x) = x + 1$, is .....

a) $\{0\}$ **b)** $\mathbb{R} - \{0\}$ **c)** $\mathbb{R} - \{-1\}$ **d)** $\{-1\}$

---

17) The set of zeroes of f : where $f(x) = x(x^2 - 2x + 1)$ is :

a) {0 , 1} **b)** {0 , -1} **c)** {-1 , 0} **d)** {1}

---

18) If $z(f) = \{2\}$, $f(x) = x^3 - m$, then m =.....

a) $\sqrt[3]{2}$ **b)** 2 **c)** 4 **d)** 8

---

19) If $z(f) = \{5\}$, $f(x) = x^3 - 3x^2 + a$, then a =.....

a) -5 **b)** 5 **c)** 50 **d)** -50

---

20) If $z(f) = \{1, -2\}$, $f(x) = x^2 + x + a$, then a =.....

a) -2 **b)** -1 **c)** 1 **d)** 28

---

22) If $n(x) = \frac{x}{x+5}$ then the domain of the function is .....

a) $\{0\}$ **b)** $\mathbb{R} - \{-5\}$ **c)** $\mathbb{R} - \{7\}$ **d)** $\mathbb{R} - \{-5,7\}$

---

23) If $n(x) = \frac{3}{x^2 + 2x - 15}$ then the domain of the function is .....

a) $\{0\}$ **b)** $\mathbb{R} - \{-5,3\}$ **c)** $\mathbb{R} - \{7\}$ **d)** $\mathbb{R} - \{5, -3\}$

---

24) If $n_1(x) = \frac{x}{x+5}$, $n_2(x) = \frac{x-1}{x-7}$, then the common domain of the two functions is .....

a) $\{0\}$ **b)** $\mathbb{R} - \{-5\}$ **c)** $\mathbb{R} - \{7\}$ **d)** $\mathbb{R} - \{-5,7\}$

25) If $n_1(x) = \frac{x+2}{x-1}$, $n_2(x) = \frac{x-1}{x+3}$, then the common domain of the two functions is .....

a) $\mathbb{R}$ **b)** $\mathbb{R} - \{-1\}$ **c)** $\mathbb{R} - \{1, -3\}$ **d)** $\mathbb{R} - \{-1,3\}$

---

26) If $n_1(x) = \frac{x+2}{x-1}$, $n_2(x) = \frac{x-1}{x^2+4}$, then the common domain of the two functions is .....

a) $\mathbb{R}$ **b)** $\mathbb{R} - \{-1\}$ **c)** $\mathbb{R} - \{1\}$ **d)** $\mathbb{R} - \{-1, -2\}$

---

27) If $n(x) = \frac{3}{x+l}$ and the domain of the function is $\mathbb{R} - \{-2\}$ Then l = ...

a) -2 **b)** 3 **c)** 2 **d)** -3

---

28) If $n(x) = \frac{x-3}{x+3}$ then the domain of $n^{-1}(x)$=.....

a) $\mathbb{R}$ **b)** $\mathbb{R} - \{-3\}$ **c)** $\mathbb{R} - \{3\}$ **d)** $\mathbb{R} - \{3, -3\}$

---

29) The simplest form of the function f , where $f(x) = \frac{2x^2+x}{x}$ is .....

a) $3x$ **b)** $2x^2 + 1$ **c)** $x^2 + 1$ **d)** $x + 1$

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المراجعة رقم (5)

الترم الثانى

Accumulative Questions in Algebra

1) Twice of number $2^{14} = 2^{\cdots}$

2) Quarter of number $2^{20} = 2^{\cdots}$

3) $3^5 + 3^5 + 3^5 = 3^{\cdots}$

4) If $3^{X-2} = 1$, then X= .....

5) If $2^{x-1} = 16$, then X= ……

6) If $5^X = 3$, then $5^{X-1} =$ .....

7) If $3^{X+1} = 12$, then $3^X =$ .....

8) If $(x - 3)^{zero} = 1$, then X ∈ .....

9) If $2^X = 3$, then $8^X =$ .....

10) If $(\frac{5}{3})^x = (\frac{3}{5})^2$, then x = …….

11) If $2^X = \frac{1}{8}$, then X = ……..

12) If $7^{x-3} = 5^{x-3}$, then x = ……

13) $2^{12} \times 3^{12} = 6^{\cdots}$

14) $\sqrt{100-64} = 10 - \cdots\cdots\cdots$

15) If $\chi < \sqrt{51} < \chi + 1$, $\chi \in \mathbb{Z}$, then $\chi = \cdots\cdots\cdots$

16) $\sqrt{4} = \sqrt[3]{\ldots}$

17) The additive identity is ..... and the multiplicative identity is ..... , The number has no multiplicative inverse …….

Accumulative Questions in Algebra

18) The additive inverse of number $(-5)^{zero}$ is .....

19) The multiplicative inverse of number 1.7 .....

20) $|-2|$ = ……. , $|x| = 7$, then x = ...

21) The number 56.846 to the nearest 0.01 = ...

22) The degree of term $2X^3 Y^2 Z$ is .....

23) The degree of expression $3X^2 + XY^2 - 5Y^2$ is .....

24) Subtract -4X from 3X = ……

25) (-5a) increased by (-3a) = ……..

26) $\frac{Y^5}{Y^3} + Y^2$ = ……

27) The middle term of in the expansion $(2X - 3Y)^2$ is …….

28) The middle term of in the expansion (X – 4) (3X +5) is …

29) If $x^2 + k x + 25$ is a perfect square , then k = ……

30) The H.C.F of expression $8 X^2Y + 16 XY^2$ is ……

31) If 5a = 45 , ab = 1 , then b = ……

32) If A + B = 4 , then 3A + 3B = ...

33) If A + B = AB = 5 , then $A^2 B + A B^2$ = ...

34) If $X^2 – Y^2 = 20$, X – Y = 5 , then X + Y = ...

35) If $X^2 + Y^2 = 10$, XY = 2 , then $(X - Y)^2$ = ...

Accumulative Questions in Algebra

36) If $(X + Y)^2 = 20$, $XY = 3$, then $X^2 + Y^2$ = ...

37) If $(X-3)(X+3) = X^2 - k$, then K = ...

38) The number $0.\dot{3}$ in form $\frac{a}{b}$ is ……..

39) The number of rational numbers lie between $\frac{3}{7}$, $\frac{5}{7}$

40) The number lies at half distance between $\frac{1}{3}$, $\frac{5}{9}$

41) The irrational number lies between 3 and 4 is ..(3.5 , $\sqrt{8}$, $\sqrt{5}$, $\sqrt[3]{29}$)

42) The number $\frac{X + 5}{X - 2}$ is a rational number if X ≠ .....

43) The number $\frac{4X}{X + 1} = 0$, if X = ...

44) $\frac{3}{5}$ = ...% , 20 % of 240 = ……..

45) The conjugate number of $\sqrt{5} - 2$ is ..... , its additive inverse is ..... and its multiplicative inverse is .....

46) A cube whose volume is 8 cm^3 then , it edge length = …
Base area = ……. Lateral area = …… total area = ……
Sum of edge length = ……

47) The S.S of $X^2 - 9 = 0$ in R is .....

48) The S.S of $X^2 + 25 = 0$ in R is .....

45) The S.S of $3 < X < 4$ where $X \in N$ is .....

46) The S.S of $5 - X \leq 2$ where $X \in R$ is .....

Accumulative Questions in Algebra

47) If $1 < X < 3$, $X \in R$, then $3X-1 \in$ .....

48) $\mathbb{R}$ in interval form = ...

49) $\mathbb{R}_+$ in interval form = ...

50) The non positive real number in interval = ...

51) $[-3,2] - \{-3\}$ = ...

52) $[-2,5] - \{-2,5\}$ = ...

53) $[3,7] -]3,7[$ = ...

54) $]-3,2[\cup \{2\}$ = ...

55) $]-3,2[\cup \{-3, 2\}$ = ...

56) $]-3,2] \cap \{-3, 2\}$ =

57) $]-3,2[\cap \{-3, 2\}$ =

58) Choose: $\{3\} \subset (3,7)$, $]3,7] \quad \{3,7\}$

59) $\emptyset$ ..... $\{1,5\}$ ($\in$, $\notin$, $\subset$, $\not\subset$)

60) The sum of two square roots of the number 4 = ...

61) The prime number whose the sum of its factors 8 is .....

62) The sum of numbers in the interval]-3,3] = ...

63) $\mathbb{Q} \cup \mathbb{Q}' =$ ..... , $\mathbb{Q} \cap \mathbb{Q}' =$ .....

64) $\mathbb{R}_+ \cup \mathbb{R}_- =$ ..... , $\mathbb{R}_+ \cap \mathbb{R}_- =$ .....

65) $\mathbb{R} - \mathbb{Q} =$ ..... , $\mathbb{R} - \mathbb{Q}' =$ .....

شرح خطوات الحل على قناة

Math For Kids: Hoda Ismail

Accumulative Questions in Algebra

1) Twice of number $2^{14} = 2^{\ldots\ldots}$ 15

2) Quarter of number $2^{20} = 2^{\ldots\ldots}$ 18

3) $3^5 + 3^5 + 3^5 = 3^{\ldots\ldots}$ 6

4) If $3^{X-2} = 1$, then X= ..2..

5) If $2^{x-1} = 16$, then X= ..5..

6) If $5^X = 3$, then $5^{X-1} = \ldots$ $\frac{3}{5}$

7) If $3^{X+1} = 12$, then $3^X = \ldots$ 4

8) If $(x - 3)^{zero} = 1$, then X ∈ ..$\mathbb{R} - \{3\}$..

9) If $2^X = 3$, then $8^X = \ldots$ 27

10) If $(\frac{5}{3})^x = (\frac{3}{5})^2$, then x = ..-2..

11) If $2^X = \frac{1}{8}$, then X = ..-3..

12) If $7^{x-3} = 5^{x-3}$, then x = ..3..

13) $2^{12} \times 3^{12} = 6^{\ldots\ldots}$ 12

14) $\sqrt{100-64} = 10 - \ldots\ldots$ 4

15) If $x < \sqrt{51} < x+1$, $x \in \mathbb{Z}$, then $x = \ldots\ldots$ 7

16) $\sqrt{4} = \sqrt[3]{\ldots}$ 8

17) The additive identity is ..zero.. and the multiplicative identity is ..1..
, The number has no multiplicative inverse ..zero..

Accumulative Questions in Algebra

18) The additive inverse of number $(-5)^{zero}$ is .... -1

19) The multiplicative inverse of number 1.7 ..... $\frac{10}{17}$

20) |-2| = ..2.... , |x| = 7 , then x = ..±7..

21) The number 56.846 to the nearest 0.01 = ..56.85

22) The degree of term $2X^3 Y^2 Z$ is .....6.

23) The degree of expression $3X^2 + XY^2 - 5Y^2$ is ..... Third

24) Subtract -4X from 3X = ..7X..

25) (-5a) increased by (-3a) = ..-2a..

26) $\frac{Y^5}{Y^3} + Y^2$ = ..$y^2 + y^2 = 2y^2$..

27) The middle term of in the expansion $(2X - 3Y)^2$ is ..-12xy..

28) The middle term of in the expansion (X – 4) (3X +5) is ..- 7x

29) If $x^2 + k x + 25$ is a perfect square , then k = ..±10..

30) The H.C.F of expression $8X^2Y + 16XY^2$ is ..8xy..

31) If 5a = 45 , ab = 1 , then b = .$\frac{1}{9}$.

32) If A + B = 4 , then 3A + 3B = ...3x4 =12

33) If A + B = AB = 5 , then $A^2 B + A B^2$ = ..AB(A+B) = 5x5 = 25

34) If $X^2 - Y^2 = 20$, X – Y = 5 , then X + Y = ..20÷5 = 4

35) If $X^2 + Y^2 = 10$, XY = 2 , then $(X - Y)^2$ = ..10 - 2x2 = 6

Accumulative Questions in Algebra

36) If $(X + Y)^2 = 20$, $XY = 3$, then $X^2 + Y^2 =$ ..... $20 - 2x3 = 14$

37) If $(X-3)(X+3) = X^2 - k$, then K = ... 9

38) The number $0.\dot{3}$ in form $\frac{a}{b}$ is ..... $\frac{1}{3}$

39) The number of rational numbers lie between $\frac{3}{7}$, $\frac{5}{7}$ infinite

40) The number lies at half distance between $\frac{1}{3}$, $\frac{5}{9}$ $\frac{4}{9}$

41) The irrational number lies between 3 and 4 is ..(3.5 , $\sqrt{8}$, $\sqrt{5}$, $\sqrt[3]{29}$)

42) The number $\frac{X + 5}{X - 2}$ is a rational number if $X \neq$ .. 2

43) The number $\frac{4X}{X + 1} = 0$, if X = ... zero

44) $\frac{3}{5}$ = ..60...% , 20 % of 240 = ..48..

45) The conjugate number of $\sqrt{5} - 2$ is ..... $\sqrt{5}+2$, its additive inverse is ..... $-\sqrt{5}-2$ and its multiplicative inverse is ..... $\sqrt{5}+2$

46) A cube whose volume is 8 cm^3 then , it edge length = ... 2
Base area = ... $4\,cm^2$ Lateral area = ... $16\,cm^2$ total area = ... $24\,cm^2$
Sum of edge length = ... $24\,cm$

47) The S.S of $X^2 - 9 = 0$ in R is ..... $\{3, -3\}$

48) The S.S of $X^2 + 25 = 0$ in R is ..... $\emptyset$

45) The S.S of $3 < X < 4$ where $X \in N$ is ..... $\emptyset$

46) The S.S of $5-X \leq 2$ where $X \in R$ is ..... $[3, \infty[$

Accumulative Questions in Algebra

47) If $1 < X < 3$, $X \in R$, then $3X-1 \in$ ...]2,8[

48) $\mathbb{R}$ in interval form =]-∞,∞[49) $\mathbb{R}^+$ in interval form =]0,∞[

50) The non positive real number in interval =]-∞,0]

51) [-3,2] – {-3} =]-3,2] 52) [-2,5] – {-2,5} =]-2,5[

53) [3,7] -]3,7[= {3,7} 54)]-3,2 [∪ { 2 } =]-3,2]

55)]-3,2 [∪ {-3, 2 } = [-3,2] 56)]-3,2] ∩ {-3, 2 } = {2}

57)]-3,2 [∩ {-3, 2 } = ∅

58) Choose: {3} ⊂ (3,7) ,]3,7] {3,7}

59) ∅ ..... { 1,5} (∈ , ∉ , ⊂ , ⊄)

60) The sum of two square roots of the number 4 = ...zero

61) The prime number whose the sum of its factors 8 is 7

62) The sum of numbers in the interval]-3,3] = ...3...

63) $\mathbb{Q} \cup \mathbb{Q}' =$ ...R... , $\mathbb{Q} \cap \mathbb{Q}' =$ ...∅...

64) $\mathbb{R}^+ \cup \mathbb{R}^- =$ ...R*... , $\mathbb{R}^+ \cap \mathbb{R}^- =$ ...∅...

65) $\mathbb{R} - \mathbb{Q} =$ ...Q'... , $\mathbb{R} - \mathbb{Q}' =$ ...Q...

شرح خطوات الحل على قناة

Math For Kids: Hoda Ismail

كيفية طباعة صفحات معينة من ملف معين

مثلا ازاى نطبع الصفحات من صفحة 4 الى صفحة 9